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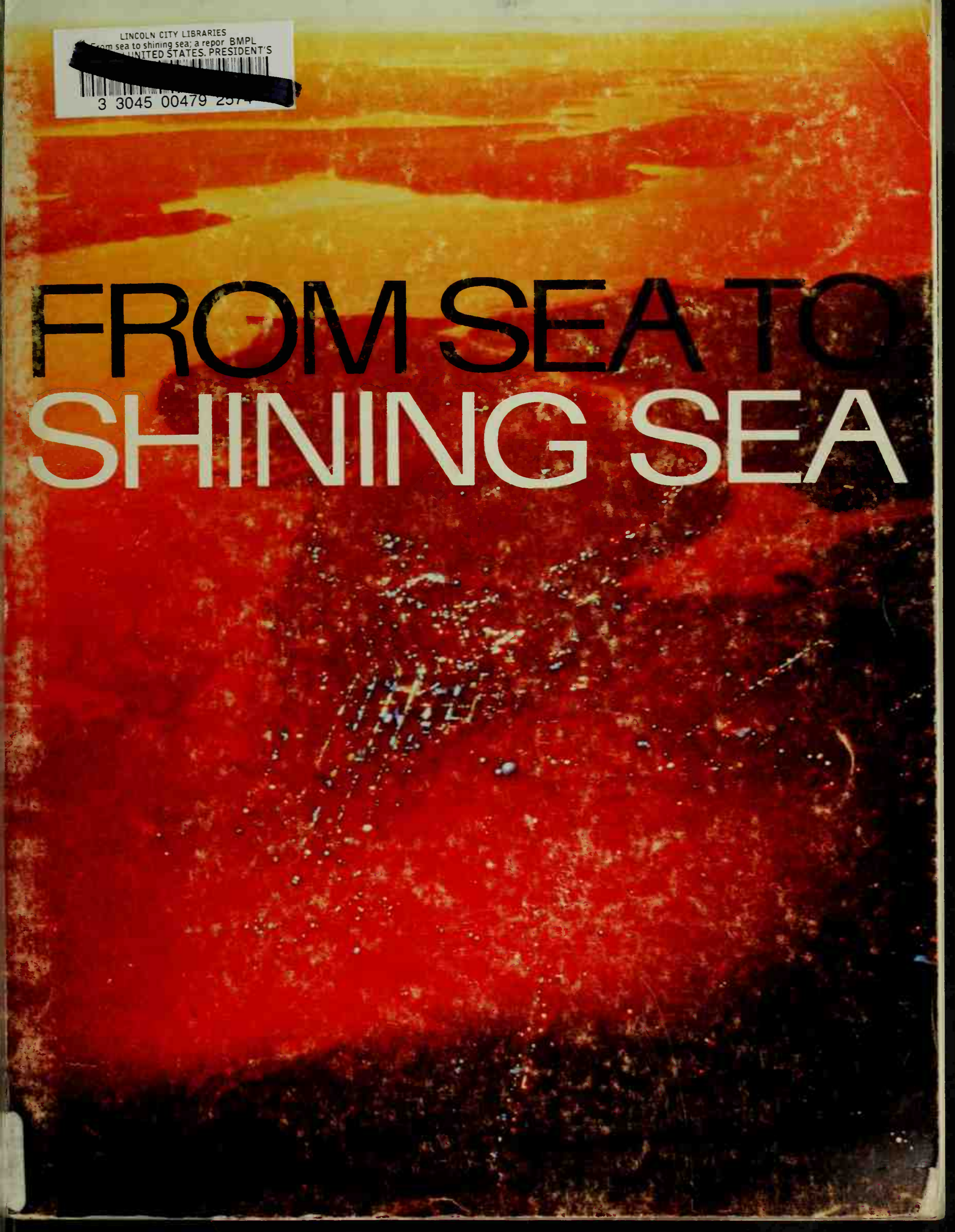

FROM SEA TO SHINING SEA

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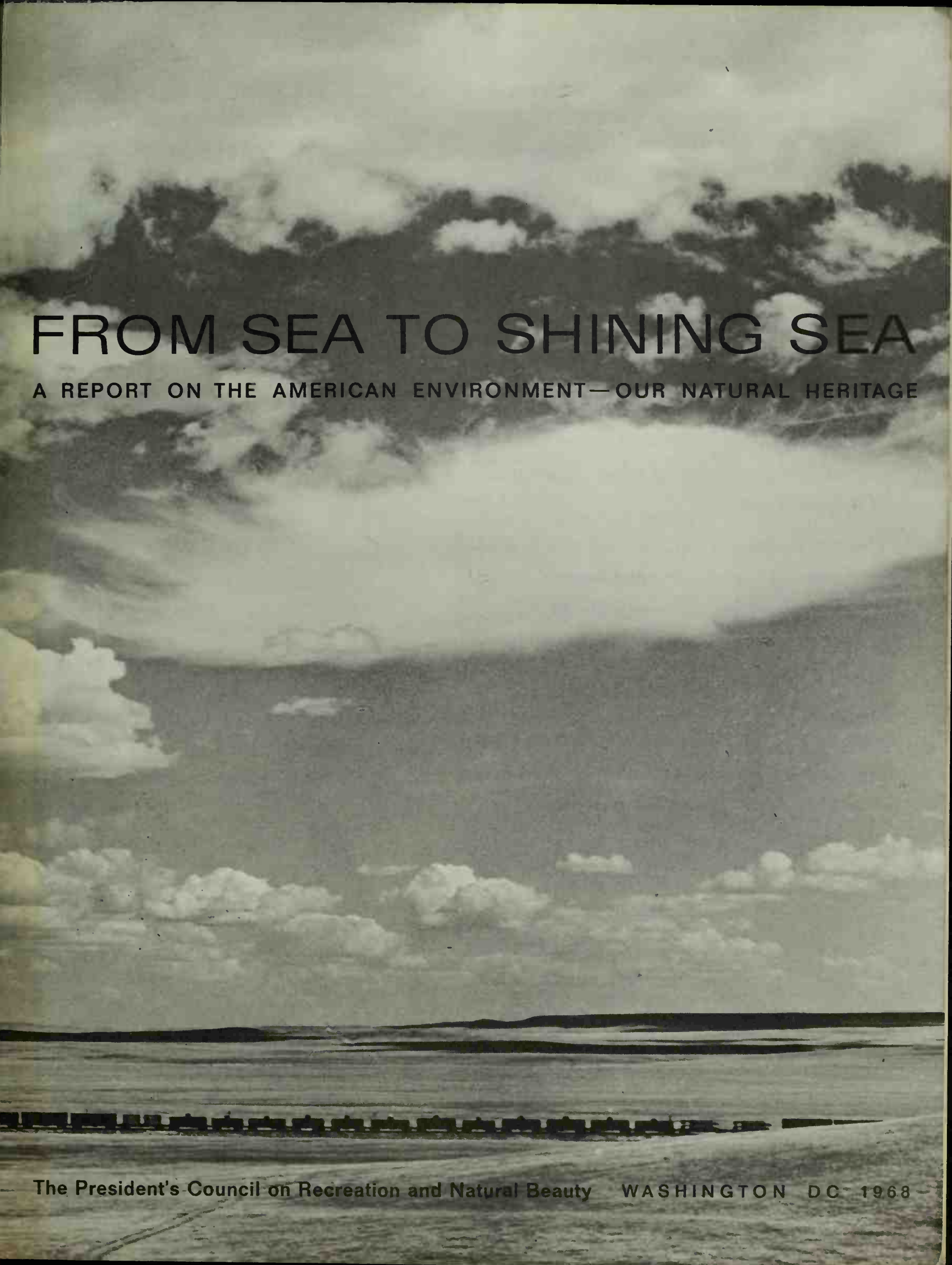

FROM SEA TO SHINING SEA

A REPORT ON THE AMERICAN ENVIRONMENT—OUR NATURAL HERITAGE

The President's Council on Recreation and Natural Beauty WASHINGTON DC 1968

"*Because the Federal Government administers massive programs that affect the natural beauty of our land, it must pursue a course that will enhance and protect that beauty. It must stimulate action in behalf of natural beauty and outdoor recreation on the part of others—of State and local governments, of private organizations and individual citizens.*

"*If it is to do this well, its own house must be in order. Its programs must be wise, and they must be coordinated. Its organization must reflect its responsibilities.*

"*Therefore, by virtue of the authority vested in me as President of the United States, . . . there is hereby established the President's Council on Recreation and Natural Beauty . . . and the Citizens' Advisory Committee on Recreation and Natural Beauty.*"

PRESIDENT LYNDON B. JOHNSON,
in Executive Order 11278, of May 4, 1966

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Washington, D.C.

The President
The White House
Washington, D.C. 20500

Dear Mr. President:

I am pleased to submit to you *From Sea To Shining Sea, A Report on the American Environment—Our Natural Heritage.* This report has been prepared by the President's Council on Recreation and Natural Beauty. It has several major objectives. One is to outline progress in environmental improvement programs since the 1965 White House Conference on Natural Beauty. Another is to present proposals and recommendations which will stimulate Federal, State, local, and private action to further enhance the quality of our environment and the beauty of our Nation. A third objective is to present a guide for action by local officials, professional men and women, citizen groups of many kinds, and individuals.

In sum, Mr. President, we hope the report will generally advance the efforts made by you and by Mrs. Johnson to improve the quality of the physical environment for the benefit of the American people. *From Sea To Shining Sea* is a monument to those efforts and a record of impressive accomplishment achieved under your vigorous leadership. It is also a challenge for the future, a comprehensive statement of environmental needs and goals, a charter to guide environmental quality programs for Administrations yet to come.

These needs and the national response to these needs must inevitably extend over a period of many years. The resolution of such problems will ultimately depend on action, attitudes, and costs borne by every individual citizen, by volunteer organizations, by thousands of businesses and industries, and by governments at all levels.

The issue raised by the report is: what kind of environment do we want and do we need? From this perspective, the report does not conclude that the Nation should renew the cities at the expense of the wilderness or that we should preserve the wilderness at the expense of the cities. The report's conclusion is that a proper environment for Americans requires that we do both.

Therefore, the proposals and recommendations contained herein represent a statement of long-term, comprehensive goals for the Nation. The Council does not necessarily expect to begin action on all these at once, nor does it establish costs or priorities. Rather, we hoped to provide a perspective useful to everyone concerned with environmental issues and a way of relating those issues one to another.

The emphasis on long-range goals, Mr. President, does not mean that we have no expectations of immediate benefits from the publication of this report. On the contrary, much already has been gained through the agreement achieved among the members of the Council in preparing this report. We heartily recommend that the policies and perspectives set forth by the Council be adopted by other Federal agencies and by other levels of government.

The report can lead to more and better use of existing tools for environmental improvement. It can lead to wider application of tested techniques. It can mobilize public support for new measures. It is the Council's hope that the report will help stimulate further activities by increasing numbers of Americans. Only then can our goal of significant improvement in the day-to-day surroundings of every American become a reality.

Sincerely yours,

Hubert H Humphrey

HUBERT H. HUMPHREY *Chairman*

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PREFACE

IN THE MIDDLE YEARS of the 20th century, many Americans became aware that the celebrated beauty of their land, proclaimed for generations by poets, artists, and writers was seriously threatened by the very forces that had created an unprecedented abundance of material goods. No longer was it possible to take for granted the beauty of flowing rivers, pastoral valleys, spacious plains, majestic forests, and pristine mountains.

The gleam of alabaster cities became dimmed by palls of smog and festering slums. Rivers and streams were turned into sewage conduits. Strip mining despoiled the countryside. Mountains of garbage accumulated around the cities. The omnipresent bulldozers, clearing the way for new highways, houses and factories to accommodate a burgeoning population, scraped bare millions of acres of hills, woods, and valleys until it seemed that there would one day be little but pavement and monotonous sprawling suburbs from sea to shining sea.

The emotions aroused in many Americans by this prospect were deeply rooted in a love for the land and a conviction, reaching back into history, that beauty somehow is an essential quality of the American environment, a part of each American's heritage.

The need to incorporate nature's principles of harmony, proportion, and vitality in the design of towns and cities had been proclaimed in the early years of the Republic by Thomas Jefferson.

"Communities should be planned," he wrote, "with an eye to the effect made upon the human spirit by being continuously surrounded with a maximum of beauty."

A century later President Theodore Roosevelt, who led the first movement to conserve the Nation's resources for the future, recognized that one of America's vital resources was its natural beauty. "There is nothing more practical in the end," he declared, "than the preservation of beauty, than the preservation of anything that appeals to the higher emotions of man."

A generation later Franklin D. Roosevelt led a second wave of action to restore the productivity and beauty of farm and forest.

In the 1960's, as the threats to the continent's environmental quality became increasingly apparent, President John F. Kennedy said: "I look forward to an America which will not be afraid of grace and beauty, which will protect the beauty of our natural environment, which will preserve the great old American houses and squares and parks of our national past, and which will build handsome and balanced cities for our future."

In his Message on the Natural Beauty of Our Country on February 8, 1965, President Lyndon B. Johnson proclaimed these principles:

> We must not only protect the countryside and save it from destruction, we must restore what has been destroyed and salvage the beauty and charm of our cities. Our conservation must be not just the classic conservation of protection and development, but a creative conservation of restoration and innovation. Its concern is not with nature alone, but with the total relation between man and the world around him. Its object is not just man's welfare, but the dignity of man's spirit.

The President called for action on a wide range of environmental problems and concluded his message with a call for a White House Conference on Natural Beauty, which was held in Washington on May 24 and 25, 1965. In reporting to the President on the recommendations of that conference, the Chairman, Laurance S. Rockefeller, said:

> You charged us to think of natural beauty as an integral part of our everyday lives. The participants so responded. They recognized the importance of small steps—the planting of trees and flowers—but they also recognized that natural beauty will be fundamentally determined by how we treat our air and water, how we use our land and how we build upon it. We had to be concerned, in short, with the total quality of the environment.

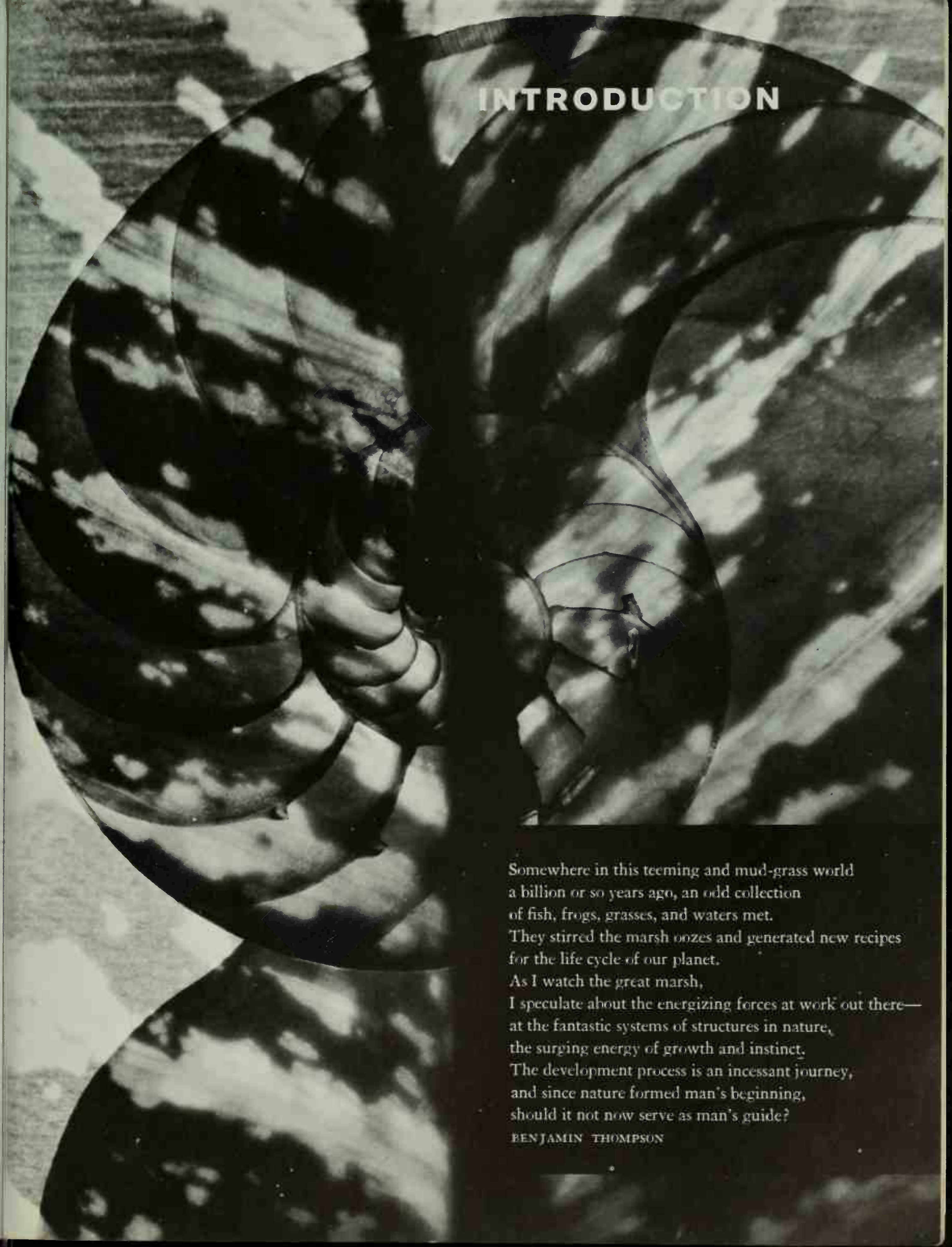
The conference provided stimulation and support for a multitude of activities designed to improve the environment. The Governors of 35 States summoned statewide natural beauty conferences. Cities and counties have held similar gatherings. An unprecedented wave of citizen action followed, dedicated to neighborhood and community improvement, preservation of historic landmarks, and protection of the beauty of the countryside. Legislation was enacted by the Congress and by State and local governments to reclaim and protect the environment from pollution, blight, ugliness, and destructive development.

This report can present only a limited cross-section of the environmental problems which lower the quality of each American's everyday life, and of the actions beginning to be taken to cope with these problems. While it emphasizes the Federal role, it does so from the point of view that the natural beauty effort inevitably depends on the actions of individuals, citizen groups, private business, and State and local governments in specific local projects.

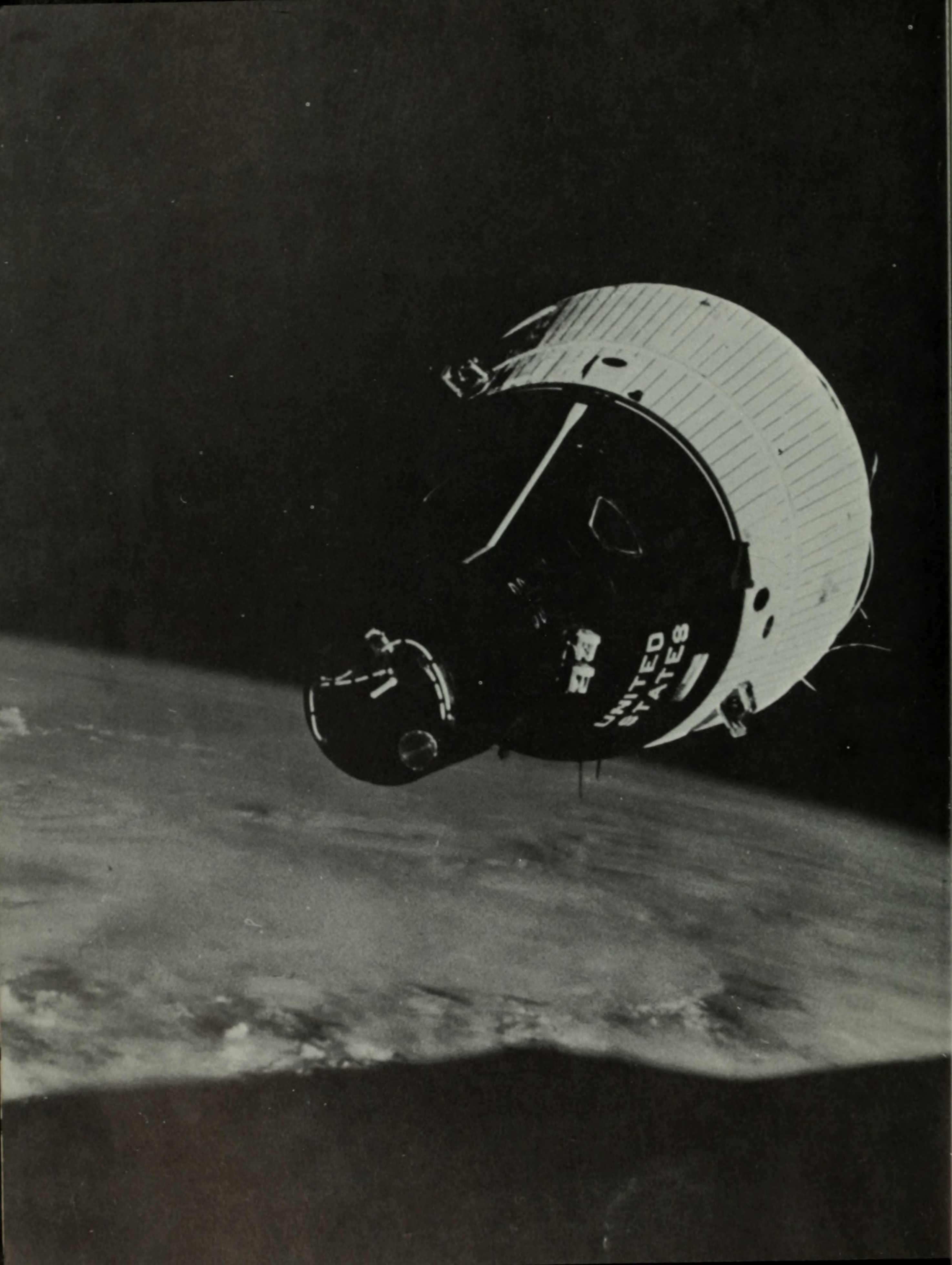
The activities described in this report are evidence of a major new national concern with the quality of the American landscape, both natural and man-made. They are only beginnings, but they may represent a historic turning point in the attitudes of Americans toward their physical surroundings.

The President's Council on Recreation and Natural Beauty presents this report of progress in this movement, together with a series of proposals and recommendations, for all who would join in the next steps in the protection and renewal of the American environment.

INTRODUCTION



Somewhere in this teeming and mud-grass world
a billion or so years ago, an odd collection
of fish, frogs, grasses, and waters met.
They stirred the marsh oozes and generated new recipes
for the life cycle of our planet.
As I watch the great marsh,
I speculate about the energizing forces at work out there—
at the fantastic systems of structures in nature,
the surging energy of growth and instinct.
The development process is an incessant journey,
and since nature formed man's beginning,
should it not now serve as man's guide?
BENJAMIN THOMPSON


UNITED STATES

Men have brought their powers of subduing the forces
of nature to such a pitch that by using them
they could now very easily exterminate one another
to the last man. They know this—hence arises a great part
of their current unrest, their dejection,
their mood of apprehension.
SIGMUND FREUD

You shall know immensity,
and see continuing the primeval forces of the world.
You shall know not one small segment but the whole of life,
strange, miraculous, living, dying, changing.
NANCY NEWHALL

AT A TIME WHEN SCIENCE AND technology have raised the human condition to unprecedented heights and freed the mind of man for incomparably greater adventures, man is perplexed by a growing sense of insecurity in the natural system that has always been his home. For man brought with him into this world not only the brilliant promise of a higher order of life, but also the threat that he will wrest from the earth a victory that is destructive to the victor.

At a distance, this seems an enormous paradox. Nature, having produced man, seems equipped to support him lavishly. As evolution proceeds, the mind of man displays a growing capacity to shape a world hospitable to his fullest development.

These harmonious prospects are imperiled, however, by the accelerating pace of change. In the technologically advanced portions of the earth, there have been greater changes in the lives of ordinary men within the past century than in all previous history. But the immense powers that man has acquired over nature have not been matched by an equivalent growth of wisdom in their use. In his single-minded pursuit of particular aims—evolving into the intensive specialization accompanying technological advance—man has often been oblivious to unintended side effects of his actions. As change is introduced on an increasingly larger scale and at an ever swifter rate, these unplanned consequences of man-induced change have coalesced to create an extraordinary crisis. To be understood, this crisis must be taken apart like the pieces of a puzzle. Some of the present dilemma was set in motion ages ago.

And I brought you into a plentiful country,
to eat the fruit thereof and the goodness thereof; but when
ye entered ye defiled my land,
and made mine heritage an abomination.
JEREMIAH 2:7

. . . in the spring of the year 1935, the sun was darkened
from the Rocky Mountains to the Atlantic
by vast clouds of soil particles borne from the denuded grasslands
of the Western States . . .
FAIRFIELD OSBORN

Like winds and sunsets, wild things were taken for granted
until progress began to do away with them.
Now we face the question whether a still higher
'standard of living' is worth its cost in things, wild, and free.
ALDO LEOPOLD

What the inner-city child calls home is often a set of rooms
shared by a shifting group of relatives
and acquaintances—furniture shabby and sparse,
many children in one bed, plumbing failing, plaster falling,
roaches in the corners and sometimes rats,
hallways dark and dimly lighted, stairways littered,
air dank and foul. Inadequate, unsanitary facilities complicate
keeping clean. Disrepair discourages neatness—
Rickety, shadowy stairways and bad electrical connections
take their accidental toll. Rat bites are not infrequent
and sometimes, especially for infants, fatal . . .
NATIONAL CRIME COMMISSION REPORT, 1967

One key characteristic of the city is variety: variety of biological
and cultural stocks, variety of wants, variety of opportunities,
variety of institutions, variety of fulfillments.
Where variety is absent, the city does not exist. Though it contains
a million inhabitants it is still culturally and socially a village.
LEWIS MUMFORD

From observing and experimenting with the processes of nature, man discovered that he could manipulate them to serve him. He invented agriculture—and learned to drain, plow, fertilize and terrace the land. He changed the courses of rivers, made gardens of deserts and reshaped mountains and coastlines. But in his haste to exploit the wealth that lay in the earth, he also deforested mountains and valleys, destroyed the ground cover, and exposed the soil to destruction.

The result was to fill the streams with silt and the marshes with debris. Man's alterations of the landscape caused the waterways to flood and further devastate the land. These alterations of the landscape also disturbed the habitats of other living things, resulting in the depletion and extinction of entire species.

Technological civilization opened unlimited new vistas to man. It made possible cities larger than ever before, offering the benefits of urban life to ever greater numbers of men, and bringing a diversity of social life and cultural and intellectual exchange never before known. But now, in the center of most of these cities, malignant cores of decay have developed. The residents of city slums know little of the rich variety of choice and quality that exalts human life. More frequently, their lives are encompassed by filth, ugliness, and squalor.

Man learned that his knowledge could be used to provide him with an enormous range of goods and services. He developed vast industries with energy borrowed or captured from nature. The wastes inevitably generated by industrial processes are poured into the water, released into the air, buried in the soil, or scattered about the land-

scape. Harmful substances have thus been freed to find their way into the cells of plants and animals throughout the earth.

Unlike most species of life, man has roamed the earth building a home for himself in every climate. Human survival has even been accomplished beneath the sea, at the poles, and now far out in space. Intricate systems of roads and highways have been constructed to speed the transport of man and his goods across the land. In America, the idea of the road leading on to better things is part of the national heritage.

Yet, as roads, houses, factories and commercial centers spread across the landscape, the distinct forms of the land and the profuse features of plant and animal life that have always been part of man's habitat are obscured or obliterated.

In pursuing survival and greater security, man has tampered with the careful balances in natural systems, sometimes with unintended consequences that endanger his security. He often overlooks the elaborate relations between predators and prey that exist in nature. Frequently, he has waged successful war against one species only to see the resulting unnatural gap filled by disastrous proliferation of another species.

Man has learned to inoculate himself against deadly plagues, and diseases that once took a dreadful toll have been almost banished from the more advanced societies. Yet simultaneously there has been a tremendous increase in the diseases of urbanization and high-pressure living—heart disease, ulcers, arteriosclerosis, hypertension, and others. Man is a part of nature and cannot with impunity

Pollutants have altered on a global scale the carbon dioxide content of the air and lead concentrations in ocean waters and human populations. Pollutants have reduced the productivity of some of our finest agricultural soils, and have impaired the quality and safety of crops raised on others. Pollutants have produced massive mortalities of fishes in rivers, lakes and estuaries and have damaged or destroyed commercial shellfish and shrimp fisheries. Pollutants have reduced valuable populations of pollinating and predatory insects, and have appeared in alarming amounts in migratory birds. Pollutants threaten the estuarine breeding grounds of valuable ocean fish; even Antarctic penguins and Arctic snowy owls carry pesticides in the bodies.
PRESIDENT'S SCIENCE ADVISORY COMMITTEE

We still possess a few highways that express what is best about America. But most of them are hideous, scars on the face of this Nation—scars that cut across mountains and plains, across cities and suburbs, poisoning the landscape and townscape with festering sores along their edges.
PETER BLAKE

Huge patches of once green countryside have been turned into vast, smog-filled deserts that are neither city, suburb, nor country, and each day—at the rate of some 3,000 acres a day—more countryside is being bulldozed under . . .
WILLIAM H. WHYTE

Man is constantly on guard against creatures he thought he had subdued, for uneasy lies the crown of husbandry where even a small population of potential usurpers still exist. The only way man has been able to produce successful wheat crops is by staying one small step ahead of the blight of rust—by turning out new varieties of wheat faster than the fungus can adapt to them.
PETER FARB

separate himself from the natural rhythms that have given him nurture during all his previous millennia on this planet.

One of the most ominous threats to the environment lies in the failure of man thus far to provide humane solutions to the problems posed by the spread of his own numbers. No major urban center in the world has yet demonstrated satisfactory ways to accommodate growth. In many areas expanding population is outrunning the readily available supply of food, water, and other basic resources and threatens to aggravate beyond solution the staggering problems of the new urban society. A limitless proliferation of the species would eventually condemn man himself to a termite existence.

There are elements of tragedy in man's abuse of nature and of his own promise. Yet the increasing recognition of America's environmental crisis constitutes abundant ground for hope. There is still opportunity to repair the damaged fabric of life if Americans begin to consider themselves part of the earth's interlocking, interdependent natural system. Americans who learned in the frontier era to "conquer" nature now need to learn new techniques of cooperating with nature.

Cooperation with nature can lead to new forms of creative expression. Man has traditionally found expression in music, poetry, painting, the performing and plastic arts, in the sciences, in industrial technology. Only recently has he begun to give this impulse expression on a large scale in the art and science of designing his environment.

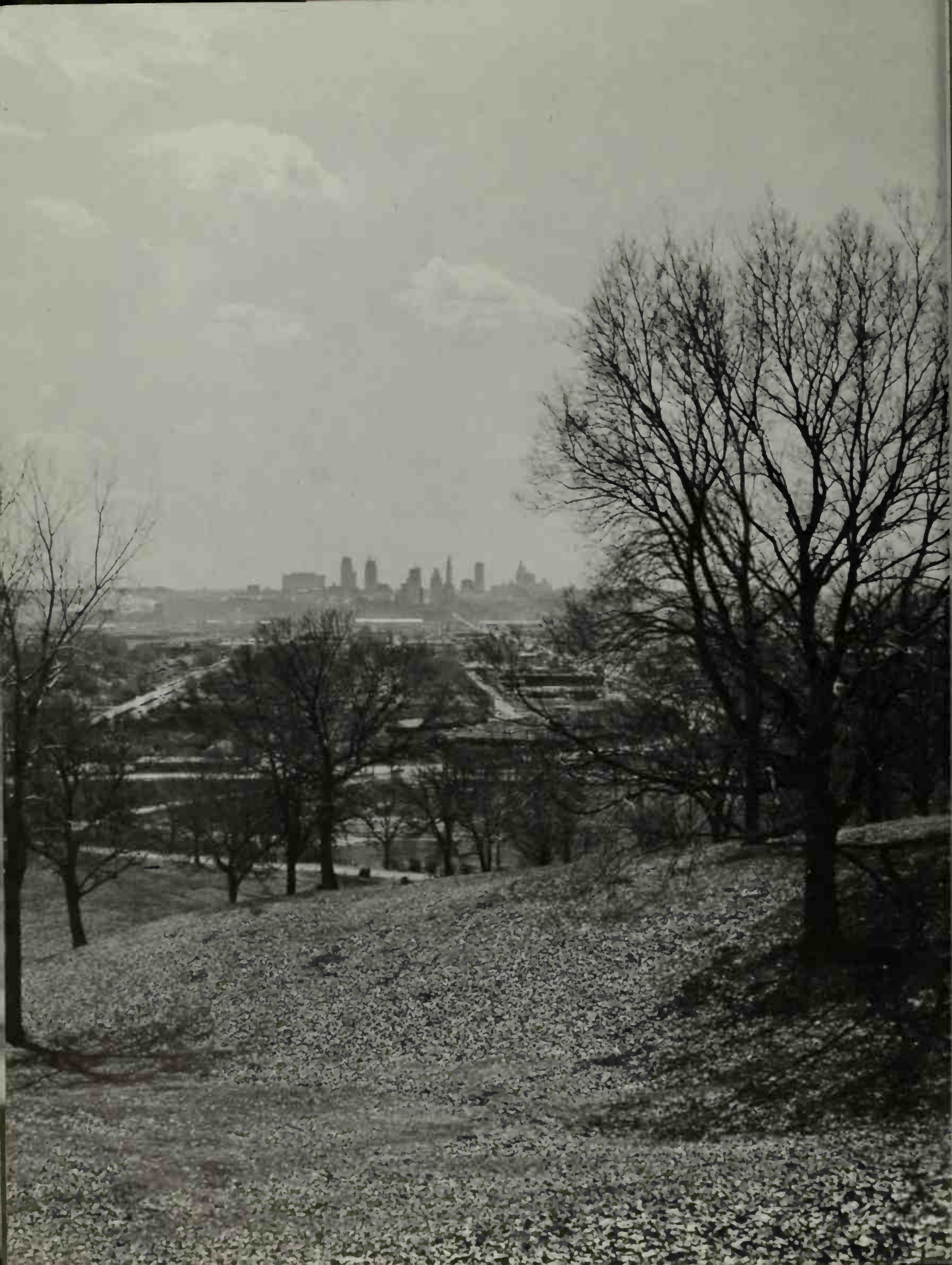
Basic to intelligent adaptation of design to the environment is the science of ecology—a word derived from two Greek

> A man can live and even be happy in the environment of a garbage heap. This is demonstrated (in the extreme) during wartime, when the human mind and perceptive system survives massive continuous shock. But life under these conditions is little more than survival. Most of man's ability to use his brain for emotional and aesthetic purposes must be cut off, and in some cases it is never regained. He becomes half a man.
>
> RICHARD S. LATHAM

> . . . overpopulation can destroy the quality of human life through many mechanisms such as traffic jams, water shortages, and environmental pollution; spreading urban and suburban blight; deterioration in professional and social services; destruction of beaches, parks, and recreational facilities; restrictions on personal freedom owing to the increased need for central controls; the narrowing of horizons as classes and ethnic groups become more segregated, with the attendant deepening of racial tensions.
>
> RENE J. DUBOS

> It is today a fact that we have been overcome by dynamic changes and that we do not even try to impose a rational order. When we do, it is on a small scale, for a short period, and very often after the process of commitments has started . . . that is, when it is too late.
>
> CONSTANTINOS A. DOXIADIS

> Nature will dominate, and all cities will be green cities, with parks in the heart of each block and encircling belts of agriculture, natural playgrounds, and wilderness. Man's desire for a good life and his love of nature will determine the form of the town.
>
> CLARENCE STEIN



Failure to understand the environment in which a project is being carried out sometimes has appalling results. It is now perfectly within the ability of ecologists to predict the success or failure of many development projects, agricultural or even industrial, if they have studied the environment in which the activity is to be undertaken, and possess the right physical and biological data.

F. RAYMOND FOSBERG

The similarities between getting men to the moon and creating a city closer to the heart's desire . . . are impresssive. As truly as a spaceship, a city is a product of men's thinking than can be overhauled, rebuilt, and improved.

SCIENCE AND THE CITY, REPORT OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

words meaning "the study of the home." It is the study of the relation of an organism to its total environment. No man is an island, and no creature of any kind is independent of its habitat. Changes cannot take place in one part of the complex web of life without affecting the whole. Every proposed human change in the environment must be considered for its total effects. Ignorance of the long-term, indirect consequences of human activities is the root of the contemporary crisis. Ecology helps to reveal nature as a laboratory offering the guidance man sorely needs in his efforts to restore and enhance the quality of his environment.

Ecology has a counterpart in the field of technology with the development of systems analysis. A space missile, for example, is a combination of systems—each composed of sub-systems—for propulsion, guidance, enclosure of passengers, and communications. The effects of all activities within each system and sub-system must be measured not only by the efficiency of the single system but also by their effects on other systems.

Similarly, a human environment is composed of various systems and sub-systems, including a residential system, a park system, an educational system, a commercial system, an industrial system, an agricultural system, a communications system, and a transportation system. The goal of all these systems should be a total environment capable of satisfying the broadest range of human needs. The effects of activities within each of these systems must be evaluated for their influence on all other systems constituting the environment. A transportation system, for example, should be measured not merely for its efficiency in moving people and goods, but for its effect on residential neighborhoods,

Beauty is order, it is health, it is diversity, it is function. The opposite of beauty is disorder, disease, monotony, and malfunction.
RAYMOND F. DASMANN

The planting of flowers to brighten the heart of a city may not accomplish an environmental revolution, but it may well lead to a new awareness of their surroundings on the part of many members of the public—Flowers can lead to trees, and trees to public parks, and parks to comprehensive planning programs.
RUSSELL E. TRAIN

parks, schools, the distribution of commercial and industrial facilities, the total development of the community and of the individuals who compose it. Sophisticated methods of evaluating these effects have yet to be developed, and therein lies a major contemporary challenge to science and technology.

Yet, whatever knowledge science can bring to bear on the problems of these times will not be sufficient. The adaptation that the future demands will require the effort of a whole people. Will that effort be made? The beginnings of a response may be found in the widespread enthusiasm for the natural beauty movement. It is almost as if Americans, confronted with the staggering consequences of nature out of balance, have fallen back on the one faculty that can somehow judge it and respond: the esthetic sense. If something is beautiful, it is likely to be functioning properly and in good health. The ability to perceive beauty may, in the long run, prove man's salvation.

The natural beauty movement has from the start meant far more than "beautification." It means a vigorous expansion of traditional concepts of the American conservation movement started by John Muir, Gifford Pinchot, and Theodore Roosevelt. It means turning also to the problems of the cities, where most Americans live. It means the control of pollution and litter and the elimination of public eyesores. It means a resurgence of civic pride in the neighborhoods and towns of America. It means a new emphasis on amenities in the man-made environment such as grass, flowers, trees, parks and open spaces, fountains, art in public places, and design excellence in buildings and streets. It means broadening the process of decision-making by

"Fulfillment" is probably the embracing word; more fulfillment and less frustration for more human beings. We want more varied and fuller achievement in human societies, as against drabness and shrinkage. We want more enjoyment and less suffering. We want more beauty and less ugliness. We want more adventure and disciplined freedom, as against routine and slavishness. We want more knowledge, more interest, more wonder, as against ignorance and apathy.

SIR JULIAN HUXLEY

public agencies to include humane and esthetic considerations. The natural beauty movement implies a faith in the capacity of technology to solve the problems it has created and an imaginative determination to find innovative solutions. Finally, the idea central to the natural beauty movement is the belief that exposure to nature in some form contributes to the renewal and fulfillment of every human being, in body and in spirit.

The ambitious aims of the natural beauty movement will not be quickly achieved. The effort requires hard thought, difficult decisions, and a reappraisal of some habitual standards and values. Success will ultimately depend on the willingness of the individual to accept the responsibility of environmental stewardship.

The new society at last, proportionate
to nature . . .
Clearing the ground for broad humanity,
the true
America, heir of the past so grand,
To build a grander future.

WALT WHITMAN

This report explores the questions raised by the new emphasis on natural beauty along with some of the answers that are already emerging. Here are portrayed the beginnings of a movement that may well fulfill the pioneer promise of a man-made America commensurate with the natural splendor of this continent.

THE MA
DO
WA

TOW-AWAY ZONE
NO PARKING
8AM-9AM
EXCEPT SUNDAY
HOUR
1/2
PARKING
9AM-10PM
EXCEPT SUNDAY
MENS WE
NO

Part I
THE ENVIRONMENT

THE URBAN AREAS

WHAT CONSTITUTES AN ENVIRONMENT SATISFYING TO MAN? What is it about one's surroundings that makes for a good day? A good year? A good life? The search for answers should commence with a consideration of a man's home, the setting of daily life.

For more than seven out of ten Americans, home is an urban setting—not only the place of residence, but the site of most experience. By the year 2000—a mere 32 years away—nearly nine out of ten Americans will dwell in urban areas.

As a consequence of this increasing urban concentration, cities and their surroundings have become increasingly congested, cluttered, blighted and besmogged. Seldom do they offer an environment to nourish the human spirit. But with the reassertion of natural influence and the imaginative design of his own structures, man can create environments hospitable to his highest aspirations.

The following four chapters examine the quality of the urban environment—from the appearance of neighborhoods to the management of the metropolitan region.

The Neighborhood

FOR MOST AMERICANS, the residential neighborhood provides the major environmental experience. Most adults recall vividly and often nostalgically the neighborhoods where the most impressionable years of childhood were spent, the places associated with early experiences of birth and death, sickness and health, friendship, marriage and all the intimate ceremonies and activities that lend deep emotional significance to family life.

These formative experiences are inevitably enhanced and enriched in attractive, well-ordered neighborhoods; they are demeaned in districts of blight, litter, and ugliness, whether in decaying, crime-infested slums of the central city or in dreary sprawling suburbs on the outer urban fringes, the slums of the future.

Neighborhood blight, both in the urban core and at the periphery, inevitably spreads like a malignant growth unless vigorous countermeasures are taken. The task of raising the quality of the American environment begins here, in the neighborhood. This task includes providing for the beauty of nature—trees and gardens, natural land forms, and landscaped areas—as well as for the varied design of buildings, recreation areas, and public facilities.

The beginnings of neighborhood improvement are evident throughout the Nation, many of them made possible by new forms of Federal assistance. The Open Space Land Program of the Department of Housing and Urban Development provides grants to local governments for 50 percent of the purchase price of urban land for recreation, conservation, scenic, or historic purposes. The Urban Beautification program, administered by the same department, provides grants of up to 50 percent of the development cost for neighborhood improvement projects. The Department of the Interior's Land and Water Conservation Fund, although designed to help provide public outdoor recreation opportunities whenever needed has provided a number of 50 percent matching grants to acquire and develop land in urban areas for recreation and conservation purposes. Federal help, however, can only encourage and supplement local programs which are developed by the skill and energy of the community.

OLD NEIGHBORHOODS

The problems of blighted neighborhoods are yielding to a more discriminating, selective process of renewal and rehabilitation. Renewal programs are now seeking to preserve and improve buildings that are still sound and vital, to remove structures beyond repair, and to retain and enhance the social patterns that have evolved—the community gathering place, the broad-sidewalk play area, the playgrounds and parks.

PARKS AND OPEN SPACES

National, State, and county parks are rarely accessible to the minority groups and the poor who live in the central city. The provision of usable parks and open space is vital in renewing old neighborhoods.

Improvement of Existing Parks: Often neighborhood parks are not fully used, owing to poor maintenance, worn-out equipment, concern over personal safety, unattractive design and lack of supervised recreation. Improved patrolling and better lighting alone can result in greatly increased use. A U.S. Department of Commerce study indicated that better lighting in playgrounds decreased vandalism in some areas of New York City by more than 80 percent.

Park improvement is an important element in local beautification programs. Chicago, for example, carried out improvements in 134 parks during 1966–1967. Pittsburgh remodeled and enlarged the 70-acre North Side Commons with the help of a Federal beautification grant to provide new opportunities for recreation, including play lots, fountains, and extensive planting. A similar grant to New Haven, Conn., supports the restoration of existing parks through landscape design to emphasize views and installation of a new shoreline walk, trails, lighting, trees, benches, and a paved area for tennis in summer and ice skating in winter. Denver

Parks in old neighborhoods serve diverse needs.

renovated 22 parks and Richmond, Va., seven playgrounds with the help of similar program grants.

In many old neighborhoods, the grounds of public housing, schools, and community centers represent an open space asset not used to best advantage. Too often, landscape planting of public grounds has been considered a "frill," an unwarranted expense. The result is bleak and uninviting open space.

A foundation-sponsored project at Riis Houses, a low-income public housing complex in New York City, demonstrated an effective design solution to inadequately developed open space. The replanned open space provides for a wide range of activities separated by changes in elevation, by sculpture, and by trees and shrubs. New facilities include an amphitheater, a garden, a plaza, and sitting and play areas. The project won a 1966 Honor Award for Design Excellence from the Department of Housing and Urban Development.

New Parks in Old Neighborhoods: In most cities parks and playgrounds are in shortest supply in old inner-city neighborhoods where they are most needed. Improvement of the few existing parks in these areas needs to be supplemented by the creation of new ones.

The Open Space Land Program is helping remedy these open space deficiencies. San Bernardino, Calif., for example, received a 50-percent grant to aid in the purchase of the last remaining vacant land in a crowded neighborhood on the north side of the city. The site will be developed as a neighborhood park, providing ballfields, game courts, and a children's playground in an otherwise space-poor neighborhood.

Congress amended the Open Space Land Program in 1965 by adding authority for assistance in acquisition and clearance of built-up land in areas where no suitable vacant land existed. In the "Old West End" of Toledo, Ohio, a grant from this program was used to help create

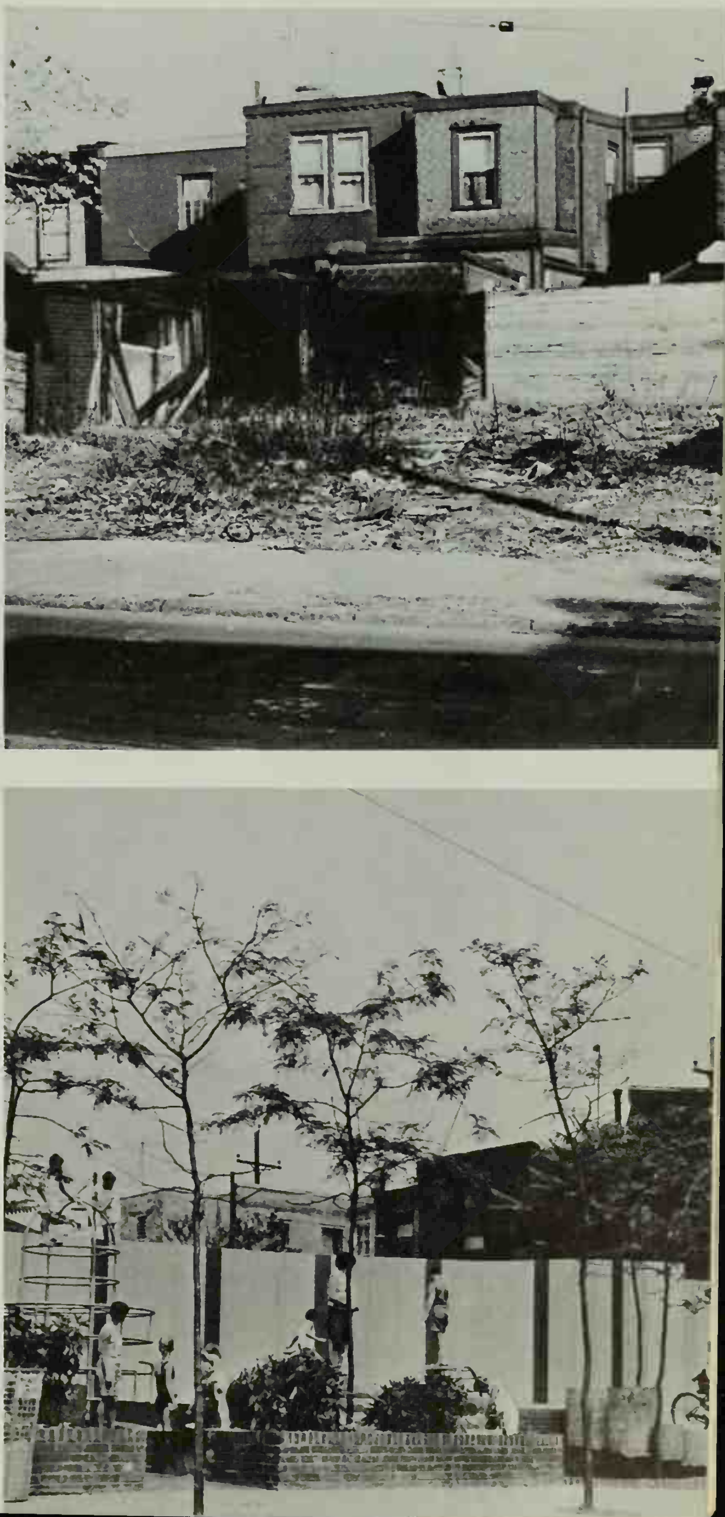
The transformation of a vacant lot in Philadelphia demonstrates how small spaces can be converted to park use.

a one-acre Warren School Park, bringing recreation opportunities and an open green place to a completely built-up neighborhood. By the fall of 1967. 41 open space grants had been given for the acquisition and clearance of developed land.

New Use for Small Spaces: Given the high cost of city land, it is not often feasible to create new parks and open spaces of considerable size in old neighborhoods. Many communities are making creative use of small areas that are vacant or that can readily be cleared. In Philadelphia, with the assistance of Federal beautification grants, 100 vacant lots in highly congested neighborhoods are being transformed into "vest-pocket" parks under a program that permits tax-delinquent real estate to be devoted to recreation and green space use. In Milwaukee, a number of small plots of land in low-income neighborhoods have been acquired, with help from an Open Space Land Program grant, for conversion to small playgrounds.

New York City received a beautification grant to demonstrate an imaginative "portable park" concept. Ten to 15 vacant city lots will be transformed into play areas with specially designed equipment built in a modular design of wood, pipe, cables, and stone. These can be taken down and redesigned or reassembled on another vacant space as the needs of the children and the neighborhoods change or as the land is required for other public uses.

Rooftops: Many adjoining inner-city houses have flat roofs that might be converted to roofgardens and sun decks. Rooftop space on parking garages and other large buildings could be put to similar use. In many New York City blocks, for example, roofs have a contiguous area 85 feet wide and a block long. Many cities, for safety reasons, prohibit the use of this space. However, where existing parapets are high enough to provide protection or new safety barriers could be constructed, it would be possible to permit safe recreation. In some



In many old neighborhoods the only open spaces available to residents are streets and sidewalks.

cases, structural strengthening of the roof may be necessary.

Commercial and Industrial Property: A further possible source of unused open space is commercial and industrial property which could be available for the part-time recreation use of nearby residents. The Eli Lilly Company in Indianapolis provided land for inner-city playgrounds on company property and also purchased equipment and paid operating costs. In many neighborhoods, if observation of industrial processes from platforms or decks were feasible and safe, an interesting element would be added.

Streets as Open Space: Cities on occasion close off certain streets to traffic to provide sites for public events such as block parties. Permanent closing of some streets would create space for neighborhood malls. The use of air rights over freeways and other surface installations for the construction of plazas, observation decks, or pedestrian bridges is another untapped source of space in old neighborhoods. Such areas could be enhanced with benches, trees, and flowers. In neighborhoods where streets constitute the only open space available, the planting of trees and other landscape improvements are essential. Pittsburgh, Pa., and Richmond, Va., have both started vigorous street landscaping programs in old neighborhoods.

Better Recreation Programs: Imaginative recreation programs can contribute immeasurably to the value of parks and open spaces in old neighborhoods. New York's park programs include fashion shows, poetry readings, dog training courses, music and art "happenings," including a "paint-in" where everyone was offered a brush, paint, and space on a lengthy canvas and invited to express himself. Business firms join in the sponsorship of special events and are given full public credit for their support.

Recreation programs can also be devised to promote year-round and nighttime use of school grounds and other public areas that usually serve only seasonal or part-time use. Programs such as these help to attract

Resident involvement is the key to neighborhood quality.

greater numbers of people to neighborhood recreation areas. The safety that comes from numbers offsets the fear for personal safety that keeps many neighborhood residents from visiting underused parks. Comfortable and attractive "outdoor furniture," particularly innovative play equipment, also helps to make public areas inviting.

Resident Involvement: The creation, maintenance, and management of parks and open spaces in old neighborhoods present a great opportunity to employ, train, and stimulate the disadvantaged residents of the area. Several communities, for example, have integrated their beautification activities with local anti-poverty programs, such as the Neighborhood Youth Corps and the Work Experience Program. These programs have provided unskilled and semi-skilled labor for park and recreation projects resulting not only in physical but social benefits from personal pride of accomplishment.

- The Watts Labor Community Action Committee in Los Angeles conducted a program supported by the U.S. Department of Labor, involving children and youth in neighborhood cleanup work, small park development and maintenance, recreation, and cultural activities.
- In Trenton, N.J., the Neighborhood Youth Corps is helping develop and beautify neighborhood play areas and commons in a project supported both by the Office of Economic Opportunity and the Urban Beautification Program. Community organizations will help design these areas and participate in their upkeep.
- Neighborhood House in Richmond, Calif., in the summer of 1967 provided work for 100 unemployed and disadvantaged youth in constructing facilities and supervising recreational activities at sandlot day camps for neighborhood youngsters.
- In Washington, D.C., to test the feasibility and value of a work experience program for disadvantaged urban youth, more than 1,000 young people worked on neighborhood cleanup, rat control, and beautification, including the construction of "tot lots," small play areas for children. Later the program began more fundamental job-training activities, including training in landscape gardening, home improvement and building maintenance.
- In Pittsburgh, Pa., a nine-week work-experience program was sponsored by Action Housing, Inc. This engaged 170 boys and girls, aged 16 to 21, in the construction of play lots, designed by architectural students, in various parts of the city.

Resident involvement in neighborhood parks and recreation programs can be greatly stimulated by seeking neighborhood help in the cooperative planning and maintenance of such areas. In 1967 the National Park Service, for example, broke precedent by agreeing to work cooperatively with a neighborhood citizens group

Older neighborhoods that are well tended retain their quality and stability.

Where total demolition of building in old neighborhoods is required, low cost units that can be quickly assembled, like these experimental, prefabricated modules, can minimize relocation hardships for neighborhood residents.

New and improved technology can be applied to the redevelopment of old neighborhoods.

in Washington, D.C., in the permanent maintenance and preservation of a new park. Eastland Gardens Park, located in the Anacostia section of the city, was planned by the Park Service in conjunction with the Eastland Gardens Flower Club and the Civic Association. Under the guidance of trained Park Service personnel, neighborhood dwellers will clean the park, mow the grass, plant and tend the flowers, shrubs, and trees. The Park Service's labor savings will make possible the purchase of additional equipment, supplies and materials. Similar cooperative agreements with other groups are under negotiation.

Resident involvement on this scale begins to point the way toward more fundamental neighborhood renewal. Parks and open spaces are by no means the whole answer to the problems of a rundown neighborhood, but they can provide the impetus to foster a quality environment throughout the district.

NEIGHBORHOOD CONSERVATION

Improving the quality of deteriorating neighborhoods requires a total social and economic approach that affects the causes of the deterioration. The beginnings of this kind of total approach are found in the Model Cities legislation of 1966, which calls for concentrating on the task all available resources, public and private. A major purpose of the Model Cities program, Congress declared, is "to enhance neighborhoods by applying a high standard of design; maintain, as appropriate, natural and historic sites and distinctive neighborhood characteristics, and make maximum possible use of new and improved technology and design . . ."

To fulfill these objectives, the program encourages participating cities to seek variety and design quality in street furniture, playgrounds, low-income housing, libraries, malls, and other facilities. One hundred and ninety four cities applied for participation in the Model Cities program. Of these, the Department of Housing and Urban Development selected 63 to receive initial planning grants. In the target areas chosen there are one million families, or over four million people. Nearly a third of the families have incomes of less than $3,000 a year, and most earn less than the median income level in the locality. One-fourth live in substandard housing, and many more are overcrowded in deteriorating buildings.

(For a discussion of the effects of public economic, tax, and regulatory powers on the quality of neighborhoods see The City, page 77.)

Basic to the effective redesign and redevelopment of old neighborhoods is the creation of focal points for neighborhood services and activities. The Neighborhood Facilities Program, also administered by the Department of Housing and Urban Development provides assistance for the development of neighborhood centers in low-income districts. These centers, 103 of which are planned or nearing completion across the country, can offer a wide range of social services at the neighborhood level. Many combine health, education, and recreation programs, welfare and employment services, and day-care centers. Neighborhood Facilities grants may be used in conjunction with Open Space grants to help poorer neighborhoods develop combined park and social service centers. Dallas and New York City, for example, are developing urban parks in conjunction with neighborhood centers.

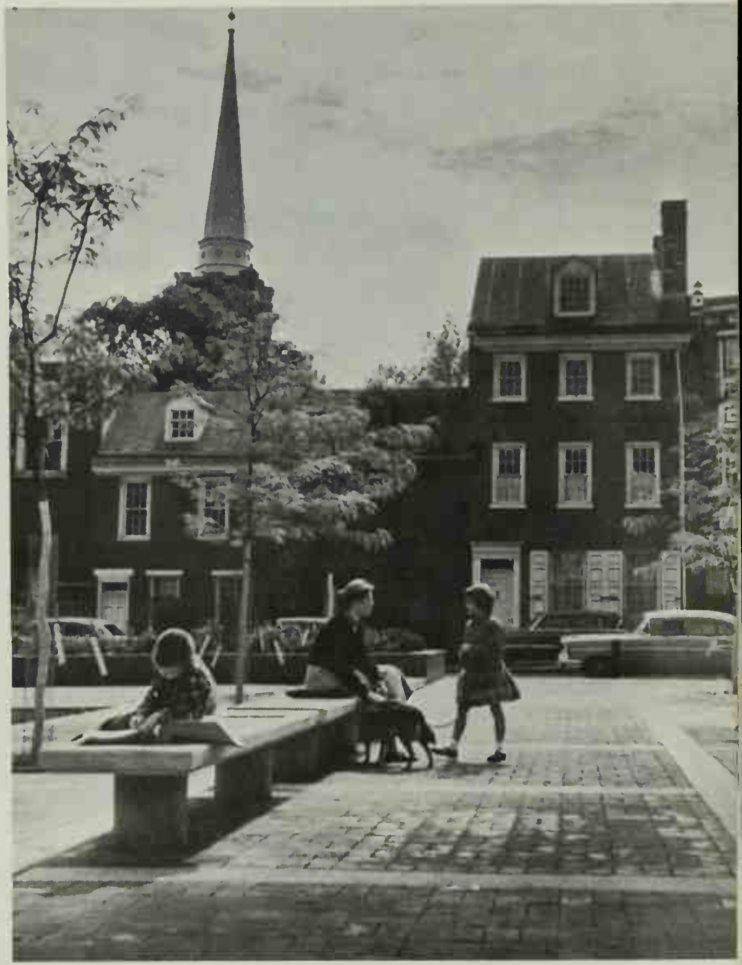
Private enterprise is assuming more responsibility for the restoration of old neighborhoods, a trend that should be encouraged by all levels of government. (See Part II, page 251, Business and Industry.) Such major industrial concerns as United States Gypsum Company and United States Steel Corporation have bought housing in old neighborhoods to test the development of new markets for their products through experimental rehabilitation. Religious and other civic groups are entering the low-income housing field on a non-profit basis.

A principal problem in neighborhood conservation efforts has been the understandable suspicion and hostility of residents who fear that they will be displaced or their community disrupted. To be successful, a neigh-

Neighborhood redevelopment offers an opportunity to blend old and new urban qualities.

borhood improvement project of any kind must be grounded in the needs and expectations of the residents—a goal that may best be achieved through their participation in the planning process. Achievement of this goal implies the ability to develop a partnership between residents and planners, housing authorities, and other public officials.

The one public hearing required on renewal plans or projects receiving Federal assistance needs to be supplemented by other means of encouraging the participation of neighborhood residents. The guidelines issued for Model Cities participation call for an organizational structure through which the residents can join in planning, policy-making and program implementation. Residents are to have direct access to the city agency responsible for planning the program; some of them are to be hired to work full time on the planning, and



Human satisfaction should be the ultimate aim of neighborhood redevelopment programs.

others are to be employed in reconstruction projects. These structures will provide the mechanism not only to listen to the views of residents, but to resolve differences through joint planning, discussion, negotiation and mediation.

The West End urban renewal project in Atlanta, Ga., was preceded by intensive public discussion of the project within the neighborhood. To provide information, the Renewal Authority established a neighborhood office which was staffed entirely by residents or former residents of the area. A local Businessmen's Association set up a speakers' bureau. Nearly every club, Parent-Teacher Association, and church in the area formed an urban renewal committee or discussion group. School children made the plan a class study project. Renewal officials went into living rooms to explain the program at "urban renewal" parties. Apart from enlisting public acceptance of the renewal project, the campaign set off a spate of remodeling jobs on individual homes.

Resident involvement in neighborhood redevelopment should include many forms of self-help. A project keyed to self-improvement by homeowners has begun in Charleston, Mass., an old and rundown but basically sound Boston area community. The city and a local private utility have joined in the sponsorship of a Home Improvement Center to show neighborhood residents how to do the job and to assist them in planning budgets, obtaining financing, and getting construction bids.

Slum-dwellers, however, are rarely the owners of the buildings they inhabit. Often, they do not have the incentive, means, skills, and the leadership necessary for programs of home repair and renovation, grounds improvement, and other forms of neighborhood rehabilitation. The impact of the Model Cities Program and the various anti-poverty agencies—as far as they go—should help to solve these problems. But the necessity remains for innovative ways of encouraging effective resident participation. Government, business, and civic groups need to expand their neighborhood improvement activities and condition them on resident involvement. The design professions, for example, could render a great public service in many communities by actively assisting disadvantaged residents in conducting programs for neighborhood improvement.

The Council proposes that Federal policy reflect the great and largely unfulfilled need for resident involvement in many kinds of improvement and redevelopment projects in old neighborhoods. Federal agencies should develop programs and methods, which stimulate this resident involvement fully.

In typical subdivision developments, little regard has been paid to the character of the landscape.

THE DEVELOPMENT OF NEW NEIGHBORHOODS

In the years following the end of World War II, the pent-up U.S. demand for housing was released in the greatest construction boom in history. Around nearly every city in the land, wave after wave of subdivisions flowed out into the countryside, engulfing fields and orchards, hills and valleys. Never before had so many houses been built for so many people in so short a time.

Some of the subdivisions were well-designed and carefully planned to preserve the natural beauty of the landscape. But the urgent need for housing and the lure of quick profits caused many more to be quickly and cheaply built with little effective public regulation to insure proper design or to require respect for the forms of the land. Too frequently bulldozers simply scraped the site bare and graded it level, destroying trees, streams, and natural contours. Too frequently the goal was merely to throw up houses in a hurry, with little regard for other needs of residents—the needs for safe and attractive streets, for playgrounds and recreation centers, for convenient access to schools and stores, for parks and open space.

The result was that families which had moved out of the central city to enjoy the space and beauty of the countryside soon found themselves surrounded by a sea of monotonous housing, with few of the compensating conveniences and advantages they had left behind in the city. But there is ample opportunity to learn from the errors that were made. All the building that has taken place since World War II is relatively small compared to the construction that will be necessary in the years ahead.

Within the next few decades, to accommodate a growing population and rising incomes, it will be essential to build more new residences than have been constructed previously in the entire history of the Nation. The way in which this gargantuan task is done will decisively affect the quality of the American environment for the coming century. Clearly the task requires public and private planning of unprecedented magnitude. It offers an unparalleled opportunity for creative innovations centered around the needs of Americans not only for

New neighborhoods should be planned from the start with consideration for the quality of the natural setting.

efficient and attractive housing, but for cultural facilities, for recreation, for open space and natural beauty.

PARKS AND OPEN SPACE

Before land is dedicated to residential development, its character deserves thoughtful attention. Certain areas generally should be avoided for safety reasons—most steep slopes and clifftops, active earthquake fault zones, beaches, and areas subject to flooding. Hillside building is likely to create large scars on the landscape unless the density is limited; the steeper the slope, the fewer the buildings that can be located there without severe esthetic damage. Some local governments limit hillside building by designating different permissible densities for varying degrees of slope. (See discussion of urban land-use planning on page 104.)

Soil, hydrologic, and geologic information available from the Soil Conservation Service and the Geological Survey can be helpful in orderly planning of land use patterns that are harmonious with natural landscape features.

Once a site is selected, open space should be reserved for recreational and esthetic purposes. The open space can be of many varieties—woods, meadows, ravines, hillsides, lawns, playing fields, orchards, or gardens. It should be selected purposefully so that it can be woven into the neighborhood pattern to serve a number of other purposes as well—to establish neighborhood boundaries, to guide further growth, to protect neighborhoods from the sight and sound of other installations, such as highways, airports and industries. Well-designed open space enhances property values and contributes to the stability of neighborhoods.

Although the traditional American neighborhood

Open space for common use can be preserved by grouping houses close together.

consists of single-family detached dwellings, each with its own yard, other kinds of neighborhoods now beginning to be developed in many areas offer attractive possibilities for maximizing open space.

- Individually owned row houses on common greens.
- Cluster developments, built on the principle of conserving space for common use by locating the houses in close groupings.
- Separate homes or row houses with related private recreation centers.
- Various combinations of these approaches, sometimes including high rise apartment buildings.

Open space may be acquired in a variety of ways. The subdivider himself may give land for open space use to a suitable public body or to an association of homeowners. Some communities require the subdivider to dedicate to open space use a specific proportion of the total area. Hawaii in 1967 passed a law requiring every subdivider to provide land for schools and parks or the cash equivalent. Howard County, Md., has an Open Space Trust Fund created through allocation of a fraction of a transfer tax on real estate. The fund is used to acquire open space for public use.

In some cases the subdivider retains ownership and management of the open space himself; in others, the common land is deeded to the local government or a special unit of local government is established to administer the land; in still others, a nonprofit corporation consisting of the homeowners is created to maintain the land.

Another method is purchase of land by the local government. A city, for example, might buy 10 acres in a proposed subdivision—at raw land costs without utilities—for a park.

It is generally economically feasible for developers to provide adequate open space in expensive suburban developments. The chief problem is to provide open space in low-cost and low-middle cost developments where the modest price is achieved by crowding as many houses as possible onto a site. Since this is a market that must be supplied, there is a need for research on how to provide open space in low- and moderate-priced developments by the use of clustering, rowhousing, multi-story housing and innovative neighborhood plans.

Federal assistance is available for the purchase of land to meet recreation and open space needs in developing urban areas. Typical of Department of Housing and Urban Development Open Space grants is the one awarded to the Village of Homewood, in a rapidly growing section of Cook County, Ill. The grant assisted in the purchase of a five-acre site, to be known as West Governor's Park. Another Open Space grant enabled Montgomery County, Pa., to acquire 50 acres of a stream valley and flood plain to insure a natural break in a rapidly spreading pattern of suburban growth.

The Land and Water Conservation Fund also has been used to acquire open space land in growing areas. Anchorage, Alaska, has obtained support from the Fund to establish several neighborhood parks. Another example is Winfield, Kans., which acquired 13 acres for the creation of Cherry Street Park.

In meeting urban open space needs, the Federal role in land acquisition is limited to financial assistance. The initiative and responsibility rests on communities themselves. By requiring all new developments to set aside a certain proportion of land area as common open space, and by better land use planning within the development, the Federal Housing Administration estimates that communities could create a half-million acres of new urban parks in the next 35 years.

The preservation of open space should be accompanied by thoughtful design and planning for its use.

The Council recommends that State and local governments require developers or residential subdivisions to set aside adequate and appropriately located open space within each development, or provide equivalent funds for the purchase of open land elsewhere in the genreal area. High priority should be given to the preservation of streams, trees, land contours, and other features of the landscape. These measures should be encouraged in all possible ways by Federal agencies and should be a condition of Federal financial assistance to subdivision developers.

The need for safety, quiet, and the convenience of residents should govern the planning of subdivision streets.

STREETS

The great automobile inundation of the mid-twentieth century has produced profound changes in the atmosphere of American neighborhoods. Residential streets which were once quiet, tree-lined areas contributing to neighborhood spaciousness and often usable for some kinds of recreation have become roaring thoroughfares, lined with parked cars, sources of noise, clutter, and danger.

Street design of new neighborhoods can be adapted to the automobile age by the use of specialized streets for specific functions, separating various kinds of traffic. The use of cul-de-sacs and looped streets, for example, can discourage through traffic within a neighborhood and return the street to its residents. This concept was first demonstrated in the development of Radburn, N.J., nearly 40 years ago.

In Radburn, houses are located in irregular-shaped "superblocks" of from 35 to 50 acres, many times the size of a normal city block. Wide streets surround the superblock, and the houses are reached by narrow dead-end lanes leading toward the interior of each block. Each house has direct access by footpaths to a park at the center of the block, and the parks in various blocks are interconnected by pedestrian underpasses. Vehicular and pedestrian traffic are completely separated; children can walk to schools and parks without crossing streets.

The Radburn design forces through traffic to bypass the neighborhood. There is ample off-street parking; and the interior streets once more become quiet lanes used only by the residents of the immediate area—20 families at most. The streets occupy 25 percent less land than in a normal subdivision, and utility lines are correspondingly 25 percent shorter, making for greater economy. Danger from fast traffic is diminished almost to zero. Radburn has had only one automobile accident on its residential lanes since the community was opened in 1929. The Radburn idea is now being used in the planning of some 300 new residential developments throughout the country.

A major difficulty, however, in the use of innovative designs of streets and building locations is that local zoning and subdivision regulations written for traditional gridiron patterns developments are often too inflexible to encourage variations in lot size, density, and street design. In most areas a thorough overhauling of local regulations would encourage better design in residential developments.

Another important contribution to the improved appearance of neighborhood streets is the underground installation of utility lines. Recent advances in technology have made this increasingly feasible in developing residential areas. One of the more important advantages of burying wires is a visual one. Near Seattle, Wash., Lake Heights, a community with sweeping views of Lake

Installing utilities underground can make dramatic esthetic improvements in a neighborhood.

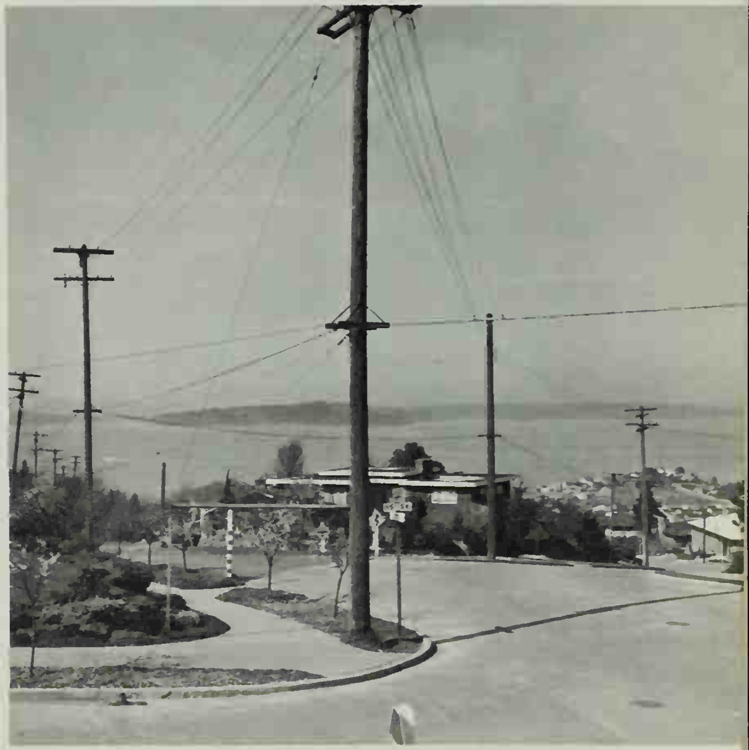
Washington, Seattle, and the Olympic Range, provides a good example of the esthetic benefits obtained through underground installation. The homeowners, who agreed to pay $325 each for the cost of the conversion project, celebrated its completion.

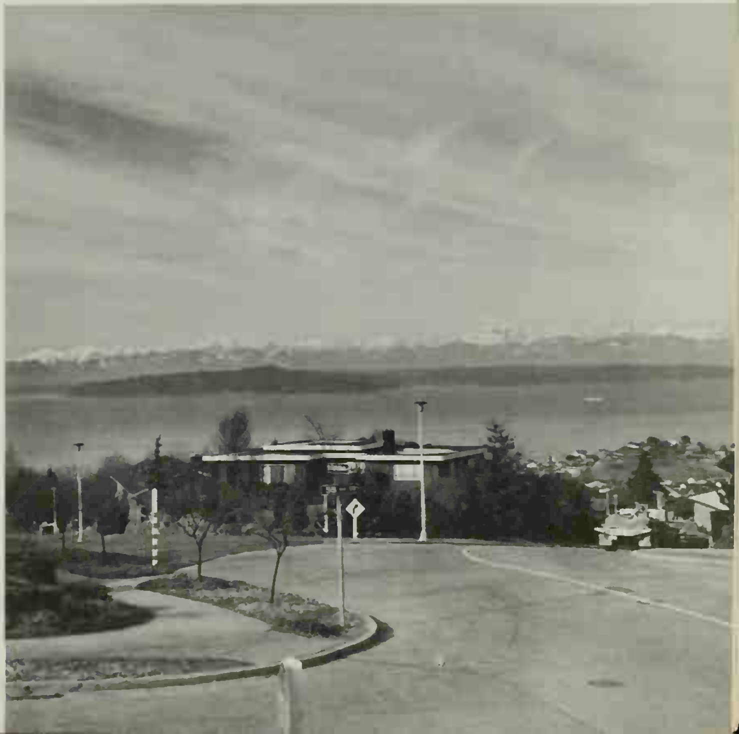
Besides the esthetic advantages, underground placement of utilities has safety benefits both for the homeowner and the utility company. Although it takes longer to repair such lines, maintenance costs are often lowered and service becomes more dependable because of decreased damage to the lines by weather.

Underground installation has clear economic advantages for the property owner. A survey conducted by utility companies in the Pacific Northwest and some other western States indicated that underground utilities add well over one percent of the purchase price to the value of residential property.

While the added initial costs may prevent or delay universal underground installations, the Federal Housing Administration now requires underground placement of power and telephone lines where economically feasible. The State of California, through its Public Utilities Commission, recently adopted a statewide policy to promote such installation. The Maryland Public Utilities Commission is proposing new regulations which will provide for the share of costs to be borne by owners at new residential subdivisions, and Montgomery County, Md., requires placing utility lines underground in all new residential subdivisions having more than five lots.

During 1966, approximately 70 percent of all new residential developments were serviced by buried telephone cables. Although burial of electrical wiring is more difficult than burying telephone cables, several electric utilities have announced that they no longer will charge residential developers for installing underground wiring. In Richland, Wash., and Salem, Oreg., the no-cost policy has been practiced for some years by municipally operated electric utility systems. After eight years of experience, the Salem utility reported that main-





tenance cost reduction offsets the increased installation cost. Northern States Power Company recently announced a $100 million 10-year program for placing feeder lines underground in cities it serves in Minnesota and parts of Wisconsin, South Dakota, and North Dakota.

The electric utility industry is cooperating with the Citizens' Advisory Committee on Recreation and Natural Beauty in a special study examining the policies and practices of various utility companies in placing distribution lines underground, both for new developments and conversions in existing neighborhoods.

Where prohibitive costs or technical requirements prevent the burial of utility lines, greater efforts are being made to improve design and location of the overhead lines by reducing the number of wires on poles and by the use of more attractive poles. Substations are often designed to blend with the surrounding environment and include landscaped, well-tended grounds.

DESIGN OF NEW NEIGHBORHOODS

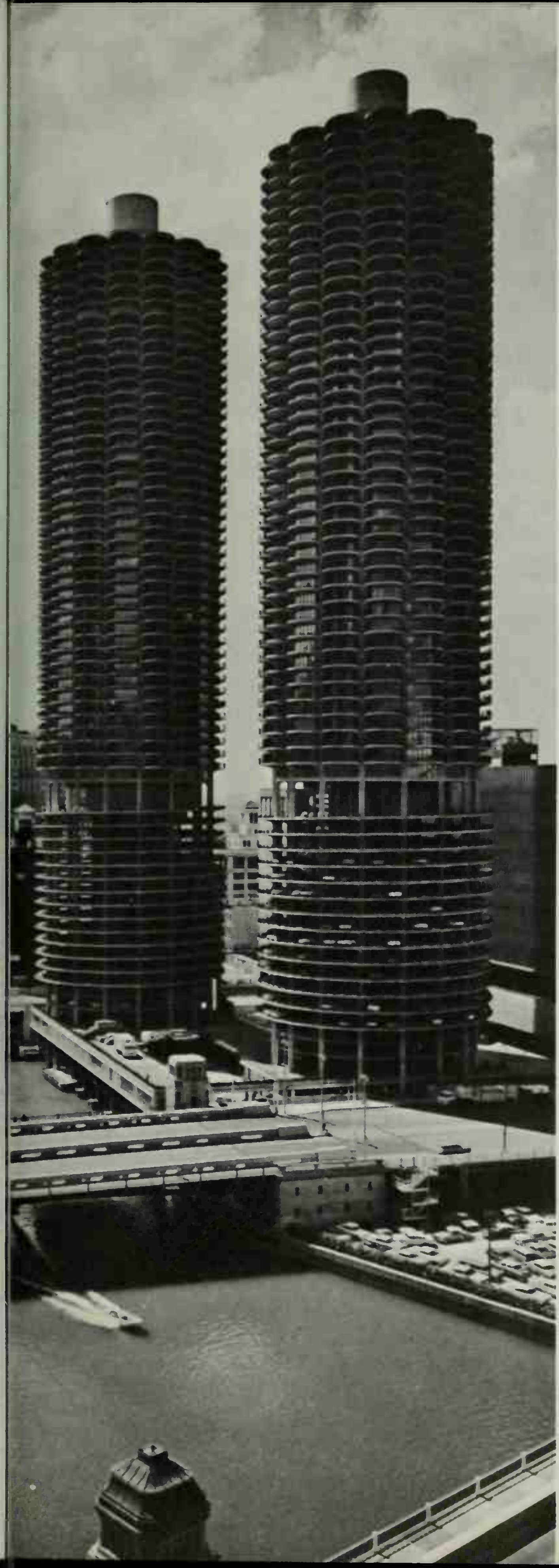
Apart from improvement on traditional forms, there are other directions for new neighborhoods to take. Neighborhoods can be put into single, large apartment houses, with some floors given to commercial, recreational, and educational use. Marina City in the heart of Chicago, for example, consists of two cylindrical towers that provide parking on lower levels and housing above. Recreation facilities, restaurants, and an office building are contained within the complex, making it possible to live, work, and play without leaving the site.

The flexibility of mobile housing is being tapped to provide shelter for college students, and modest-priced housing for low-income families, young married couples, and retired people. Construction workers whose employment takes them from region to region find mobile housing a great convenience. Many new trailer parks incorporate high standards of design, landscaped grounds, and ample recreation facilities.

New kinds of neighborhoods may result from current research into new building materials being conducted by the Experimental Housing Program of the Department of Housing and Urban Development.

Whatever forms are assumed by new neighborhoods, every effort should be made to respect and preserve the natural features of the area. To help local government follow plans and regulations for neighborhood development, which will assure good design, the Federal Housing Administration has devised a system of land-use intensity for use in guiding project design. Design con-

Conventional views of trailer parks belie the potential that exists in the use of mobile housing.



One new form of neighborhood is represented by Chicago's Marina City.

siderations are also increasingly evident in planned new towns throughout the United States. (See Part I, page 113.) But in most of the subdivisions that represent the great bulk of new residential construction, too little concern exists for neighborhood site design. When design considerations are introduced into subdivision planning, it is usually after the form and character of the neighborhood have been frozen by commitments to costs per unit, low housing density, location of community facilities, and conventional street plans. The use of professional designers in the initial planning of new residential developments offers a greater prospect of achieving excellence in design of new subdivisions.

The Council recommends that local governments through their plans and subdivision regulations encourage better design of new neighborhoods, including consideration of cluster development and other planned unit development, design innovations and variations in the siting of buildings and design and location of streets. Federal agencies providing financial or technical assistance to subdivision developers and local governments should encourage improved neighborhood design in all possible ways.

CITIZEN ACTION

The work of planners, designers, builders, and public agencies can help lay the foundations for improvement, but ultimately neighborhood quality depends on the attitudes and activities of the people who live there. The way the residents feel about a neighborhood is immediately apparent even to the casual visitor. Pride in a neighborhood is evident in its trees, lawns, and flowers; in well-painted buildings; in clean, uncluttered streets and sidewalks—the outward expression of substance and continuity. It has been a predominant purpose of the natural beauty movement to foster pride of residents

Tree planting programs have frequently served as first steps in local programs of citizen action.

in their neighborhood and responsibility for its maintenance and enhancement. Among the examples of citizen action are the following:

- In Los Angeles, a bus driver took advantage of his 11-minute breaks at the end of his line to make a small garden of the worn and littered spot where he waited.
- A Rocky River, Ohio, citizen, concerned over the appearance of his street after the removal of diseased elms, persuaded 65 of his neighbors to join in a street tree planting program.
- A teacher living in a blighted neighborhood in Indianapolis convinced her fellow citizens to clean up 42,000 tons of debris.
- Shreveport, La., citizens organized a Beautification Foundation to plant crab apple trees, crepe myrtle, and wisteria along bayous and highways.
- Oklahoma City has been enhanced by 1,800 redbud trees planted by citizen groups.
- Citizens in Albuquerque, N. Mex., Woodbridge, N.J., and Fremont, Calif., make commemorative plantings around their communities to mark special events or to honor individuals.
- In Asheville, N.C., the Beautification Committee plans to place sculpture at every entrance to the city.
- In Milwaukee, the Mayor's Committee on Beautification has adopted fountains as the theme of its campaign; four old ones have been restored and new industrial and residential areas are being encouraged to include fountains in their development.
- In Utah, 183 communities have a landscape improvement program.
- In New York City, a citizens' committee on beautification successfully sought an executive order from the Mayor to provide works of art for the city's new public buildings.

One area where citizen action can be extremely effective is in low-income neighborhoods. An example is:

- The Citizens Committee on Youth in Cincinnati, Ohio, undertook an urban conservation and training program in the summer of 1967 to prepare unemployed youth and young adults for apprenticeship training and/or building trade employment. An objective of the program was to demonstrate that programs for urban rehabilitation can effectively be used for such preparation when combined with instruction by skilled union craftsmen.

Simliar activities are taking place throughout the country. Although they have already resulted in significant improvement in the appearance of many neighborhoods, the actual changes accomplished and the methods used are little more than a beginning. Their chief significance is the encouraging evidence they provide that Americans are willing to assume responsibility for the quality of their immediate environment.

TR·208
U S AIR FO
TR·294
BLUE HORIZON III

Neighborhood park and recreation facilities can benefit from innovative approaches.

INTERBOROUGH SUBWAY
NO
NO PARKING 8 AM TO 6 PM EXCEPT SUNDAY

Downtown

HISTORICALLY, MOST CITIES developed at particular locations owing to a conjunction of natural and man-made features—a harbor or confluence of rivers, for example, a transportation crossroads, a trading center. Gradually the diverse aspects of urban life were added—a growing variety of goods, services, personal contacts, and occupational opportunities. The place where these elements came together became the heart of the city.

Today there is a new combination of forces that converge at the center of the city and now threaten to deprive it of life: Burgeoning population, racial upheaval, obsolescent structures, and inefficient transportation. The consequent decay of the inner city is a malignancy that seems to be inherent in the process of urban growth. As downtown commercial and industrial facilities spread, adjacent residential districts become less desirable. Middle class families move to the outer areas or the suburbs, leaving deteriorating housing that tends to turn to slums. The blight is contagious and spreads rapidly outward from the core, marked by shabby buildings, barren parking lots, cluttered streets, jumbled signs, noise, fumes, and litter. Downtown loses its appeal not only to residents but to visitors, shoppers, and employees; and a cycle of commercial decline commences.

However, the process of urban rot can be stopped and reversed and many communities are beginning to make vigorous efforts to do so.

STREETS

Downtown streets are the arteries for the flow of urban life and should reflect the city's vitality and diversity. Too often, however, they are devoid of beauty and order, dominated by concrete and asphalt.

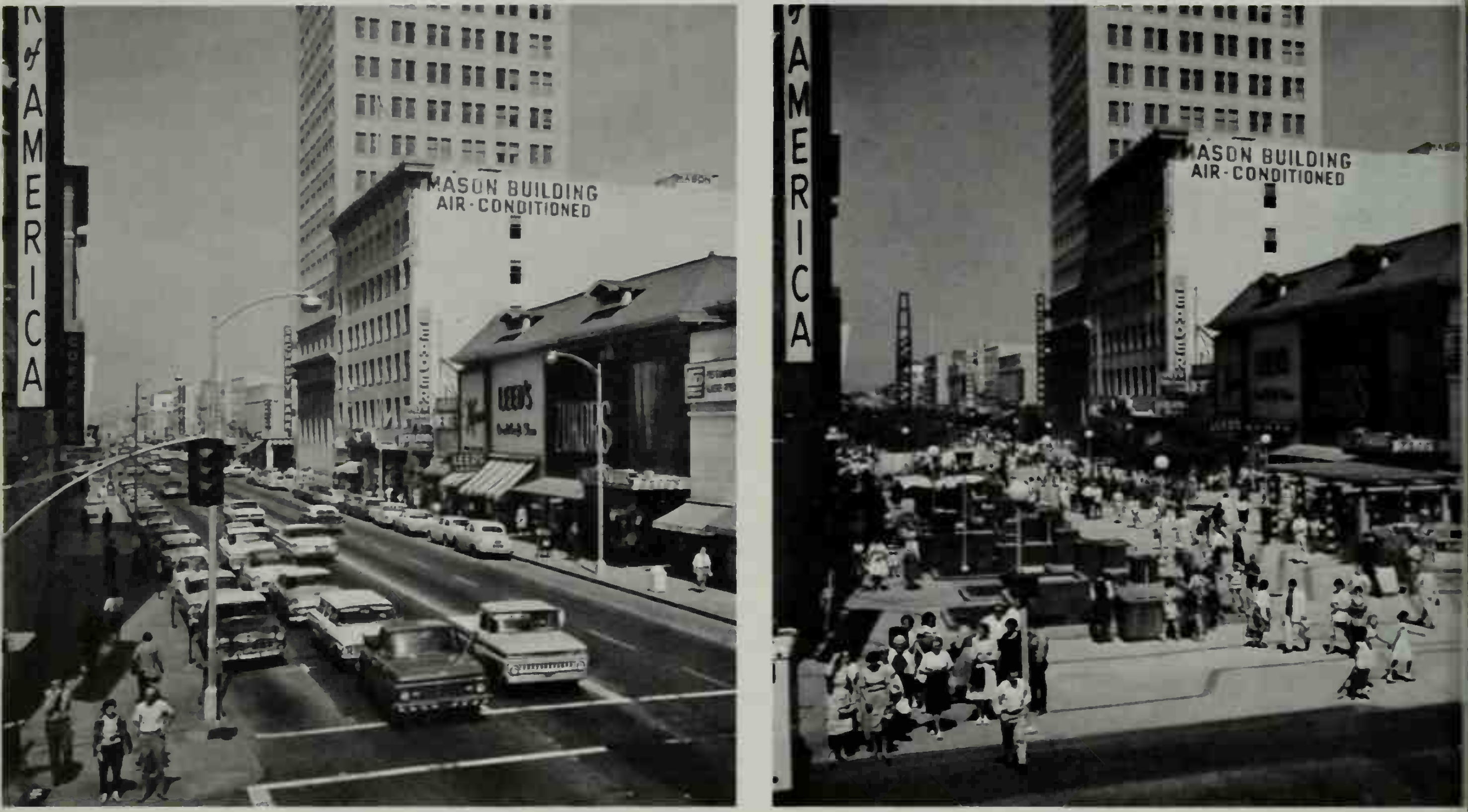
Fortunately, some American communities have begun to develop imaginative street design. In St. James, an Ozark community of 3,000 people, the streets are lined with flower boxes and young trees. Utility lines have been placed underground and attractive new street lights installed. More than 100 store fronts have been repainted in pastel shades to fit an overall color scheme devised by an architect. Five blocks of railroad tracks running through the town have been shielded by planting.

Minneapolis provides another example: Nine blocks of Nicolett Avenue now form a landscaped pedestrian walkway and plaza. The redesigned street is curved to reduce the sense of distance and to invite walking. Electric coils in the terrazzo paving keep the mall free from ice and snow.

The appearance of city streets can be improved without major alteration or expense simply by the use of paint and imaginative lighting, special attention to architectural details, and control of the number and design of commercial signs. A good starting point is an appraisal of the entire street by professional designers. With the support and cooperation of the property owners, it is then possible to create a new face for the street that emphasizes the good points and camouflages the bad.

Sheboygan, Wis., conducted a vigorous program of store front improvement after that community lost an industry because of its shabby downtown. Local banks offered a 20-percent reduction on interest rates for merchants and other persons participating in the program. The store front improvements generated a number of more basic community improvements involving $30 million in private capital. The area has since become the location of 18 new industrial plants, including those of six companies which had not previously operated in the area.

A street design plan sponsored by the U.S. Commission of Fine Arts for the Nation's Capital, offers ideas for making the streets of Washington more attractive and more effective as environmental features. Color-coded street signs, plantings, special pavings, flags, and lights are proposed to distinguish avenues from streets. The plan recommends that the design and function of all signs and other graphics and street furniture, down



Fulton Mall in Fresno, Calif., demonstrates the conversion of a conventional downtown street to a shopping mall.

to the smallest details, be planned as part of an overall design.

Another study prepared for the Fine Arts Commission deals with the appearance of parking lots in Washington. In the Capital, as in most cities, the amount of land used for parking lots now approaches that covered by buildings. These usually unplanned and often inappropriately located spaces are ugly and are often the first scars of decay of a city. Other open space and nearby architecture are demeaned.

There is a great need to reduce the detrimental impact of parking facilities upon downtown appearance. Underground parking facilities and well-designed parking garages and suitably screened parking lots can help reduce this problem. The Fine Arts study suggests improving the appearance of existing parking lots by shielding them with trees and vegetation or landscaped mounds of earth, various kinds of walls, or with other structures—for example, narrow bands of shops. The Philadelphia Gas Works has constructed a parking park to serve a company office building. It is an attractively fenced parking lot with trees, shrubs, and gaslights. The four corners of the lot are designed as miniature parks where employees or passers-by can sit, eat lunch, or wait for a bus.

The Council proposes that parking lots built in conjunction with Federal office buildings and other Federal installations be located, designed, and landscaped with emphasis on the quality of their appearance to serve as models in the community.

Public plazas add grace to the downtown environment.

COMMERCIAL MALLS AND PLAZAS

An appealing commercial feature of pleasant and well-ordered downtown streets is that they invite pedestrian traffic and thereby encourage shopping. The fact that shopping is essentially a pedestrian activity has been grasped by a number of communities anxious to revive commercial downtowns suffering the competition of outlying shopping centers. Many have banished vehicles from certain downtown areas and constructed pedestrian shopping malls. In 1967, some 50 shopping malls were being planned or built across the country.

A high level of planning and design quality is important to successful use of this idea. Traffic circulation, parking, transit, trucking, and police and fire protection must be integral considerations in the overall plan. The mall or plaza itself should be designed to provide a wide range of convenient services and attractions if it is to bring people once again to downtown. Notable examples include:

Fresno, Calif.: Fresno's handsome Fulton Mall has three features of special interest; first, the mall design was part of a comprehensive community plan; second, automobiles were banned along six downtown blocks after the State passed permissive legislation; and third, a special district was established allowing the property owners to pay by assessment the cost of mall construction. Parking is provided on the fringe of the area.

Knoxville, Tenn.: Among a number of downtown improvement projects in Knoxville is Market Square, created on the site of the city's old market house. Canopied sidewalks and shops border the square which contains trees, shrubs, and fountains, and provides a place for square dancing, children's shows, band concerts, exhibits, and fashion shows. These projects have both increased business profits in Knoxville and bolstered civic pride.

Rochester, N.Y.: Midtown Plaza, a $20 million shopping, office, parking, hotel, and restaurant complex, was the first new commercial structure built in downtown Rochester in 30 years. The multilevel complex includes an 18-story tower, a two-story plaza, and 40 retail shops. Enclosed arcades and malls—cooled in the summer and heated in the winter—link the elements of the project. Some $34 million of new construction has been completed or planned within two blocks.

Grand Junction, Colo.: "Operation Foresight" in Grand Junction was a comprehensive plan to redevelop the downtown area. It called for general improvements of storm sewers, street lighting, parking, and store fronts, with a central Shopping Park, a drive-through mall four blocks long in the heart of the downtown shopping center. Retail sales increased by $4 million in the first year of the Shopping Park's existence.

San Francisco, Calif.: History, commerce, architecture, art, and recreation have been blended into the design of San Francisco's Ghirardelli Square. When the Ghirardelli Chocolate Company decided to relocate in 1962, it left an interesting-looking old red brick factory. After several brushes with destruction, the property was finally developed into a complex of shops and restaurants located around a multilevel courtyard. Five restaurants, four handcraft shops, a small art gallery, and other retail shops have now opened there. Served by an underground parking garage, the Square also includes office space. Inspired by the success of Ghirardelli Square, another developer had converted a nearby old cannery into a similar center.

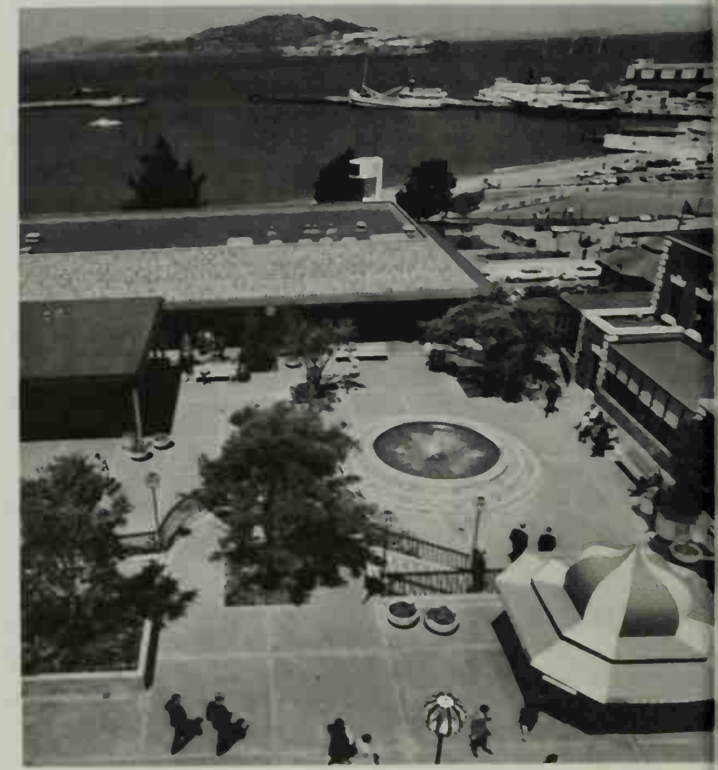
Pomona, Calif.: A mall built to relieve downtown congestion brought a 42-percent increase in retail sales during the first three months of operation.

Canton, Ohio: Canton's new Central Plaza stimulated a 35-percent increase in business in the area's retail stores.

Kalamazoo, Mich.: New Downtown Malls are given credit for a 50-percent increase in gross sales in downtown Kalamazoo during the first year of operation and also for stimulating several million dollars' worth of other improvements. In the year following the construction of the malls the local Chamber of Commerce received more industrial and commercial inquiries than it did during its entire 54-year history.

Despite evidence of this sort, no systematic inquiry has been made into the links between esthetic values downtown and the commercial vitality of downtown districts. An analysis of this relationship could well provide the stimulus for many more improvement measures and assist the work of local business and civic groups.

The Council will encourage a study of the relationship between the quality of downtown environment in cities and their commercial health. It should invite other interested groups, public and private, to join in the study.



Ghirardelli Square was developed on the site of an old candy factory.

Contrasts enliven the heart of the city.

HISTORIC PRESERVATION

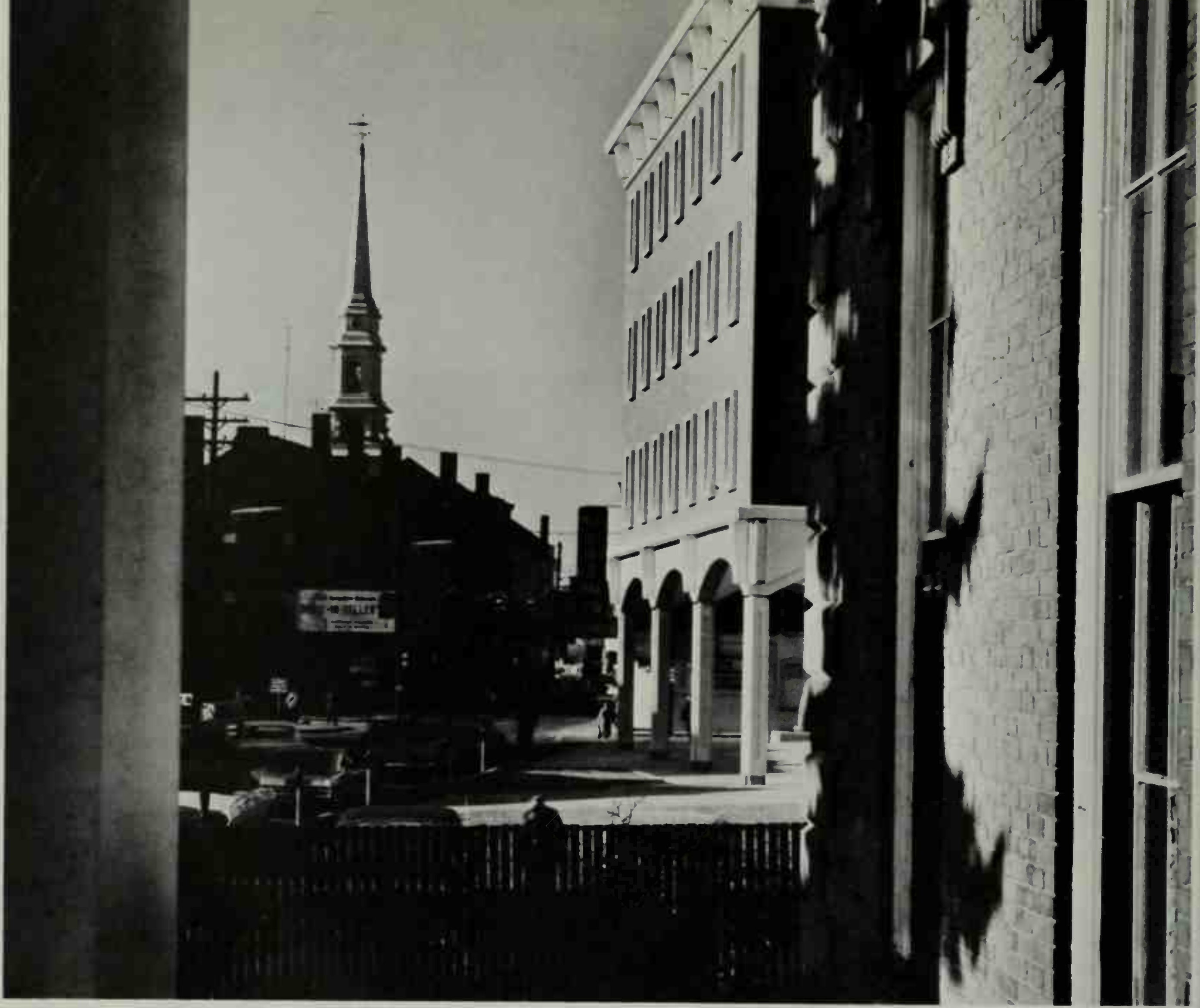
Tangible reminders of a city's past are often located in or near downtown in the old commercial and residential districts where the city originated. Downtown decay and dilapidation often overwhelm and sometimes destroy these historic remnants, reminders of a heritage.

Many communities are now planning the preservation and enhancement of these areas. Over 100 have used the programs of the Department of Housing and Urban Development to halt the destruction of historic places. In some cities, such as Portsmouth, N.H., entire areas with concentrations of historic structures have been preserved. (See discussion of historic districts, Part I, page 68.) In others, individual historic structures such as Hull House in Chicago and row houses in Washington, D.C., have been preserved and integrated with new construction.

In some communities, especially smaller ones, preservation programs may create a distinctive appearance throughout the downtown area. The ocean resort of Cape May, N.J., for example, is distinguished by its ornate Victorian architecture, much of it located in or near the central business district. An urban renewal project is now underway to refurbish the four main blocks·of the central business district, improve obsolete downtown traffic and circulation patterns, and preserve and enhance the Victorian structures.

Bethlehem, Pa., is upgrading its downtown area and saving a rich heritage. Settled by Moravians from Germany in 1741, the area contains many buildings that exemplify the skilled craftsmanship and concepts of community life for which the sect is famous. The key buildings retained are a tannery (1761), waterworks building (1792), Miller's House (1784), and a grist mill (1870). Main Street will be relocated to provide a better approach to the historic area and to integrate it with the nearby Moravian College and new Civic Center.

Thalian Hall, the city hall of Wilmington, N.C., built in 1859, has been restored. Salem, Mass., has restored a



town hall built in 1816. An old courthouse in Norfolk, Va., completed in 1850, has been returned to use as a memorial to General Douglas MacArthur. The old State Capitol at Springfield, Ill., where Abraham Lincoln once served in the Legislature, has been taken down brick by brick and stone by stone, and is being rebuilt at a new location.

Federal buildings sometimes have historic interest that enhances their communities. These structures should be razed only for the most compelling reasons. The restoration of the U.S. Courthouse and Customs Building in Galveston, Tex., is a good example of how preservation and efficient function can be combined. Restoration of this structure, the first civilian Federal building erected in Texas, was completed in 1967. In the course of its history, the building escaped disposal or demolition on several occasions. In restoring it, the General Services Administration did considerable research to determine materials, finishes, colors, architectural style, and lighting of the original building. Strong local support helped in the restoration. The courtroom on the second floor is now used by the U.S. District Court.

In some cases, the Federal Government may convey to local governments, without cost, properties with historic significance that have become surplus to Federal needs. Recently the old United States Mint at New Orleans was transferred to the Louisiana State Museum, which will restore it. The Post Office Building at St. Augustine, Fla., similarly will become a local museum.

Yet another way to retain the spirit of a community's past is to interpret it in the design of new structures. Modern designs for new Federal buildings in Roswell, N. Mex., and Portsmouth, N.H., for example, have been commended by local historical societies as being excellent examples of indigenous architecture.

Contemporary architecture can complement historic surroundings and give expression to the present as well.

Public buildings and grounds should establish standards of excellence for the entire community.

PUBLIC BUILDINGS AND GROUNDS

A large measure of the symbolic appeal and significance of downtown often derives from its function as the seat of government. The design of public buildings and their grounds should be in accord with the dignity of this function. It is the often handsome capitol, courthouse or town hall that gives recognition to art, decoration, and sculpture otherwise absent in the community.

In recent decades there has been a widespread neglect of high standards in the design of public buildings, in the landscape planting of public grounds, and in the use of art and sculpture. The current revival of interest in the American environment, however, has led to a renewed concern in this area.

At the Federal level, this concern is reflected in principles adopted by the General Services Administration for the design of Federal buildings. These principles include emphasis on the best contemporary American architectural traditions and incorporation of fine art in building designs. A Public Advisory Panel on Architectural Services, composed of distinguished private architects, has been established by the General Services Administration to advise in the selection of architects and the excellence of designs.

New Federal projects in Austin, Tex., Tampa, Fla., and Denver, Colo., have won honor awards for architectural excellence. Plans for four new Federal buildings in Washington, D.C., a new Post Office and Federal Office Building in Chicago, and a Courthouse and Federal Office Building in Philadelphia also have won professional praise.

Works of art by prominent living American artists are commissioned by the General Services Administration for new buildings at a cost of up to one-half of one percent of the construction cost. Murals and sculpture have recently been completed for Federal office buildings in Juneau, Alaska, Los Angeles, Calif., Denver, Colo., Boston, Mass., Jacksonville, Fla., Macon, Ga., and Brooklyn, N.Y. The amount now permitted for

art suffices in large projects, but there is a need to raise the ratio for smaller Federal projects where total costs are lower. The Federal Housing Administration permits costs for fine art of up to one percent in construction projects it insures.

The National Endowment for the Arts, a Federal agency established by Congress in 1965, is helping revive the use of art in public places. Part of the agency's program is to encourage cities to acquire works of sculpture for open public areas. Grants for this purpose have gone to Grand Rapids, Mich., Houston, Tex., and Seattle, Wash.

The improvement of grounds surrounding Federal buildings has been another major endeavor. As of June 30, 1967, landscape improvements had been completed by the General Services Administration at 3,292 locations, with 336 more improvement projects in process at that time and 670 more planned. In the past two years, 600 postmasters and their communities have received Natural Beauty Citations of Merit in a nationwide program established by the Postmaster General to encourage grounds improvement at local post offices. In Anchorage, Alaska, the Federal building housing the Post Office and Courthouse was honored in 1965 as the best landscaped building in the city.

Architectural quality in public buildings should be sought at every governmental level. In the small city of Columbus, Ind., a leading citizen and businessman established a foundation to pay distinguished architects to design new buildings for the town. The city now possesses over 20 new buildings, including some for commercial use, designed by nationally known architects. Construction costs are borne by the city or by the private owner, but none of the buildings have cost more than ordinary buildings of equivalent size in the area. Other philanthropic foundations located elsewhere might consider adopting this technique.

Greenville, S.C., conducted a design competition, judged by a national jury of architects, for a new city hall in a parklike civic center. Birmingham, Ala., conducted a similar competition for design of its new city hall.

In addition to design competition, many communities would benefit from the establishment of professional design review boards, such as those created recently by a number of Federal agencies. (See Part I, page 77, and Part II, page 240.) Such boards help raise the standards of public building design and often also exert a desirable influence on other community architecture.

PARKS AND OPEN SPACE

An effective way to curb the contagion of downtown blight is to provide the pleasant contrast of parks and green spaces. These areas help to reduce clamor and congestion, refresh the spirit, and diminish the tension of industrial and commercial activity.

Some American cities are blessed with sizeable natural areas in the heart of the city—New York's Central Park is a prime example. For many other cities, the opportunity to acquire large sections of the natural landscape

Parks assume special significance in the center of the city.

The sites of large office buildings may be planned to provide open space for fountains, greenery and other amenities in the downtown environment.

near the city center has long since passed. The attention of some of these cities is turning to the improvement and redesign of the parks they have and to the transformation of small or underused areas into parklike settings.

One approach is sprinkling the downtown district with small parks of the vest-pocket type described in the preceding chapter. Little of this has yet been done in American cities, but the idea has attracted much support. New York City alone intends to develop 200 vest-pocket parks in the next four years.

The Department of Housing and Urban Development's Open Space Land Program has assisted a number of communities in adding new parks and open spaces to their downtowns. In addition to grants toward the cost of acquiring undeveloped land in an urban area, this program may also assist communities in purchasing developed land in a built-up urban area and converting it to open space. This program helped Atlantic Highlands, N.J., to acquire a one-acre site for a new downtown park in a decaying business section. All existing buildings will be cleared to provide a focal point in the downtown area.

A similar grant has been made to help the State of Iowa expand the State Capitol Park in Des Moines. Great Falls, Mont., with assistance from the Department of Housing and Urban Development is creating a ¾-acre plaza in its downtown core. The city has planned the park to serve as a community gathering spot. The adjacent library intends to sponsor outdoor children's hours, puppet shows, and band concerts in the area, using a small removable stage.

Another opportunity for the creation of parklike spaces in the downtown area is to include them in the design of new office buildings. In San Francisco, for example, both the Crown Zellerbach Corp., and the Standard Oil Company of California devote portions of their office building sites to landscaped plazas for public use.

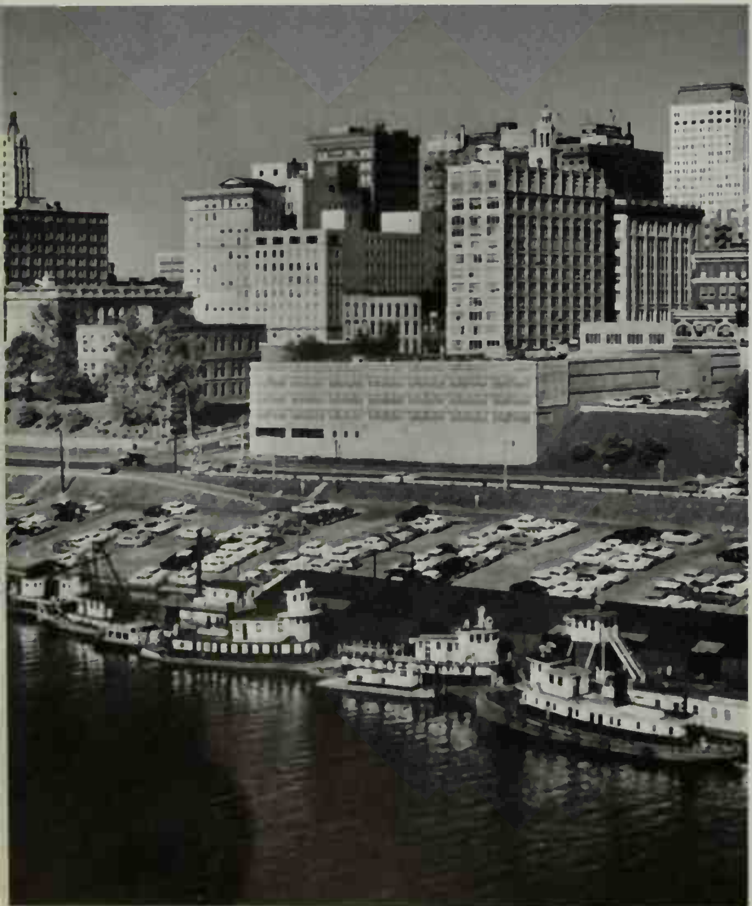
Vest pocket parks downtown have great potential. In tiny Paley Park in New York City an artificial waterfall drowns out city noises.

City waterfronts should receive more recognition as great scenic and recreational assets.

WATERFRONTS

Waterfronts offer many cities excellent opportunities for creation of urban beauty and outdoor recreation facilities. Many old industrial waterfronts have fallen into disuse, are blighted, poorly maintained, afflicted by water pollution, and cut off from pedestrian access by buildings, highways, and railroads. About 50 cities are now planning or engaged in programs to renew waterfronts and return them to use as desirable community features.

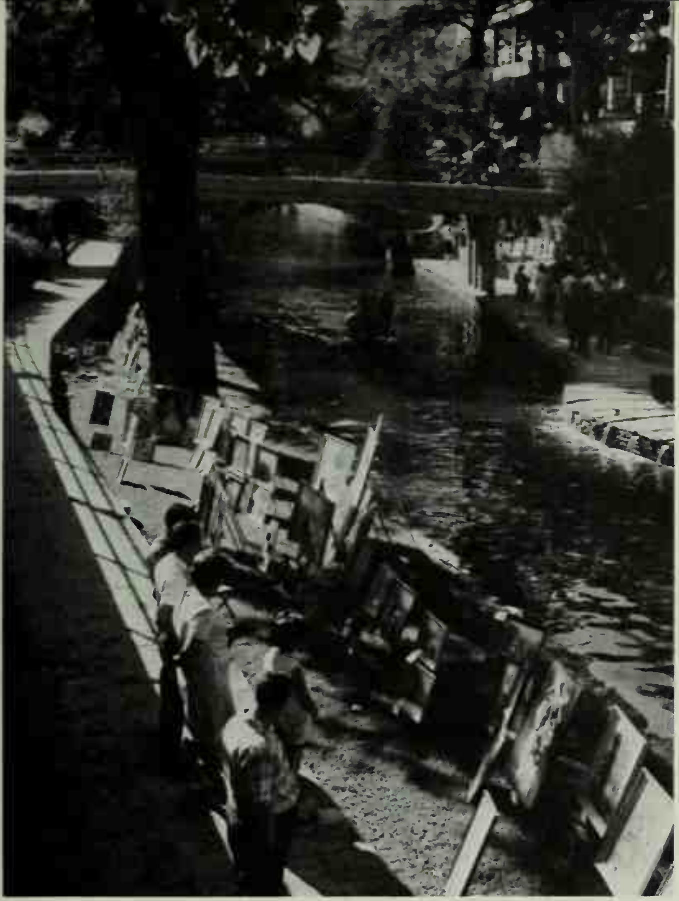
Waterfront improvement projects in a number of cities are being undertaken with Urban Beautification Program assistance; Pittsburgh, Pa., New Haven, Conn., and Berkeley, Calif., are using program grants to enhance their long-neglected waterfronts. Portsmouth, Va., is redeveloping a waterfront abandoned by a railroad company. The improvements there will include a 150-slip marina, a motel, high rise apartments, an office building, and a waterfront drive. The site of the Jefferson National Expansion Memorial in St. Louis, newly marked by the soaring steel Gateway Arch, was reclaimed from several old blocks of the city near the Mississippi River.



San Antonio, Tex., offers a preeminent example of imaginative use of a waterfront. For many years the San Antonio River, which meanders through the downtown area, was little more than a neglected slough that periodically overflowed nearby districts. In the 1930's an ingenious flood control program resulted in rock retaining walls, picturesque footbridges, stone walls and landscaped banks along 21 blocks in the downtown area, all built by the Work Projects Administration. An open air theater, shops, nightclubs and restaurants were added through the years.

In 1964, the area's River Walk was extended, connecting two existing segments, and providing 3½ miles of downtown walkway on both sides of the river. Today, a three-block-long channel connects the river with a new Convention Center. Walkways, walls, bridges, and landscaping, in keeping with the present character of the River Walk extend along the new channel, which terminates in a lagoon in the heart of the Convention Center. Visitors can ride by gondola from downtown hotels to the Center.

One of the most imaginative approaches to waterfront renewal is New York City's Lower Manhattan Plan. The planners propose to add approximately 190 acres to lower Manhattan by constructing a new bulkhead at the outer line of obsolete piers, and filling between it and the existing bulkhead. Pedestrian access over depressed and covered freeways would be direct from the city core to the waterfront. The newly created land would be used for housing and open space. Parks,



The River Walk lends delight and distinction to downtown San Antonio.

The water's edge and the city merge dramatically along Chicago's lake shore.

marinas, and a continuous esplanade would line the shore, with waterfront plazas located at the terminals of major pedestrian streets.

Further up the Hudson River in New York State is an example of waterfront renewal planning that extends along a whole stretch of river, from town to town. "Break-through to the Hudson River" is a broad study developed by the School of Architecture of Columbia University of four areas along 27 miles of the river from Yonkers to Peekskill. The plan proposes the rejuvenation of old centers along the river and the creation of new ones. Through the use of modernized transportation facilities, high levels of conservation, the construction of new towns and the reorientation of old ones, the river could be returned to its historic functions as highway, recreational resource, and living space.

Where the principal waterfront use is for port facilities, the drama of the docking and loading and unloading of ships has a special fascination of its own. Such operations could be made readily accessible to the public from observation galleries, dockside restaurants, and educational exhibits—the Coast Guard, for example, permits public access to many of its installations—but few cities to date have installed such facilities.

Whatever use is made of a waterfront, it is enhanced if human access for leisurely observation is easy and attractive. Where waterfronts are devoted to through transportation, the street or rail arteries should avoid the water's edge, or be designed with tunnels, decks, depressed grades, or other techniques that can contribute to ease of public access to the area.

The U.S. Army Corps of Engineers and the Department of Housing and Urban Development are now en-

gaged in integrating public works projects with urban planning and redevelopment efforts. Particular emphasis is being placed on projects aimed at urban waterfront renewal, with stress on exploiting opportunities for recreation in developed urban areas.

Waterfronts are only beginning to get the special attention that they deserve in city plans. As the White House Conference on Natural Beauty declared: "There is far too little actual water's edge available to the typical city resident." The conference urged the development of new techniques for extending the use of waterfronts to metropolitan residents; this need remains a pressing one.

The Council recommends that Federal agencies be authorized to conduct, in cooperation with State and local governments, a coordinated program of urban waterfront restoration that emphasizes recreational, scenic, and esthetic values, including physical and visual access.

It is important to make the water's edge accessible to the city's residents.

DOWNTOWN AS A WHOLE

The most ambitious concepts for the revival of downtowns depend on the creation of vital environments for the core. Many cities, for example, are recasting the downtown in its role as the center of community identity—the logical site for a variety of public facilities serving commercial, governmental, and cultural purposes.

In Los Angeles, the Music Center has helped to transform a large downtown area into a remarkably vital new focus for the city. The new theater in Baltimore's Charles Center not only makes a dramatic addition to the cityscape but is providing the impetus for a broader attack on the problems of the city's downtown district.

A new center in Tulsa, Okla., contains the Assembly, an auditorium and meeting place, and a library along with a new Federal office building.

New downtown centers are often planned to provide facilities for meetings, conventions, or municipal government. Detroit's waterfront civic center includes facilities for local government, conventions, and quarters for civic organizations. Hobbs, N. Mex., is adding a motel-hotel and convention center to its downtown. The St. Louis Civic Center will have a stadium and a motel among its other facilities. Hastings, Nebr., is building a new library and county courthouse that will form a civic center.

Seattle's Century 21 Fairground was built to become the Seattle Center after the 1962 Exposition. The grounds contain theaters, an opera house, art gallery, exhibition halls, and an outstanding science center. The land on which Century 21 was built was in a deteriorated section of the city. Old buildings were removed and a unified architectural plan adopted that would provide open space areas enhanced by fountains, walkways, and other attractions between buildings.

The creation of new downtown centers need not be limited to the construction of totally new projects. Baltimore, for example, converted an old downtown railway

The Jesse H. Jones Hall for the Performing Arts in Houston is one physical expression of the downtown's role as focus of the community.

station into an impressive art school and gallery. Union Station in Washington, D.C., is planned for conversion into a National Visitors' Center. Similar structures in other cities might be suitable for rehabilitation as new centers of community life.

Effective planning is necessary if the role of downtown as the center of commerce and business is to be reemphasized successfully. Market Street East, an imaginative project in Philadelphia, is to be a huge superblock and focus of the city's main shopping district. Its objective is to tie together the strands of Philadelphia's transportation system and give a giant boost to downtown business. Subways, commuter rail lines, and automobiles will be accommodated in the project, which includes a variety of offices, shops, and a plaza, with particular emphasis on encouraging pedestrian traffic. Akron, Ohio, and Dallas, Tex., also are creating superblocks in downtown centers.

The American Institute of Architects, through a program of awards for excellence in community architecture, has encouraged "projects which recognize the necessity for separation of pedestrian and motor traffic, integration rather than separation of community activities, and the need for overall traffic planning to serve the project and its surroundings . . ." In 1965–67, 22 cities received such awards.

There is growing recognition across the Nation that successful downtown area rehabilitation requires replanning as a unit. No isolated project, however excellent, can triumph over surroundings of disorder and blight. Brilliant buildings and broad plazas cannot be successful unless they are easily accessible to pedestrian traffic and public and private transportation.

With the elimination of downtown blight; with individual structures of distinction supplemented by landscaped plazas; with convenient and attractive walkways; with visual amenities such as trees, plants, and fountains; with commercial diversity and esthetic stimulation, the downtown areas of America can experience a renaissance that will add immeasurably to the quality of experience for those who visit, work, or live in the heart of the city.

W
SECURITY LIFE

THE CITY

THE SHAPE OF THE CITY

MAN SHAPES THE CITY. He builds houses and streets and all the facilities he needs to live and work in the same place with his fellow man. The quality of the environment he builds for himself depends upon his pride, sense of identity with his community, and his desire and ability to shape his future.

But, conversely, the city shapes man. "Ugliness is bitterness," Mrs. Lyndon B. Johnson has said. The physical setting, the environment, may substantially determine the extent of involvement man will have in his city and the prospects of effective participation toward common goals, which may include environmental quality. It is difficult to generate much concern on the part of each citizen for the protection and improvement of amenities and physical appearance of his city amidst all the other overwhelming problems of urban growth. A critical factor in this concern is the awareness of the community as one's home, not just his house; a home with a distinctive form and a boundary clearly understood, and within which one has freedom and capacity to shape his immediate environment to his liking.

The appearance of the city is an elusive composition which, for all its physical character, consists mainly of a mental image greatly varying with each individual. It has many scales: A manhole cover, flowers in a park, birds in flight, a great building, or the panorama of a waterfront. This physical appearance is in a never-ending process of change as the city decays and renews itself. As man himself evolves, his image of his city too, is subject to continuous change.

But in order to analyze the quality of the city's appearance, in terms of current concerns and remedies, some basic components of the physical shape of the city, and some of the more vexing problems affecting its appearance, are isolated here. Basic components include size, natural and historical setting, and focal points of the city; the vexing problems include signs, litter, and noise. These problems are more significant to the city as a whole than to its parts—its downtown or any of its neighborhoods—or even to the larger context of the metropolitan region.

The city offers its political, economic, and social institutions to help resolve such environmental problems. Its elected officials exercise public powers over a defined territory, enacting and enforcing laws, collecting taxes, managing property, and providing public services. The city has a moral responsibility to formulate environmental quality goals and to carry them out through a variety of means. Opportunities to do this are today limited only by the attitude of its citizens.

SIZE

Once a population density and distribution pattern is established on a land area, not only the liveability but also the appearance of the environment is determined. Meaningful changes to this appearance become exceedingly difficult after these factors are fixed. Urban planning for environmental quality should therefore be directed primarily toward rational population density levels and distribution patterns, since these not only affect land forms and vegetative cover, but functions like drainage, sewerage, and traffic which also have a great impact on the environment.

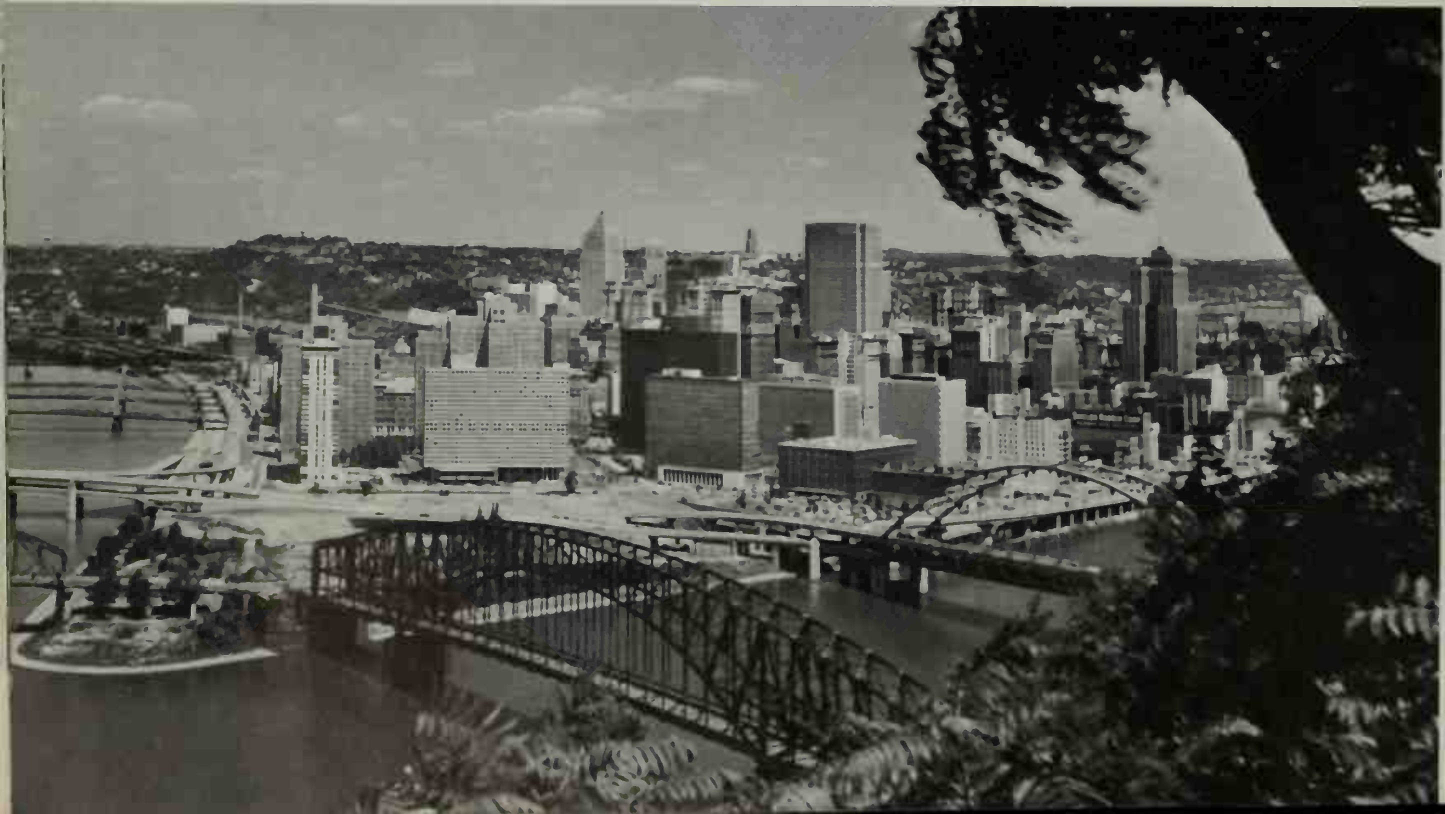
The patterns of population density and distribution relate to types of buildings, such as single family or high rise dwellings, and to transportation, such as rapid transit or car, and to allocation of urban land uses in a region. Communities could be better defined and identified with the establishment and retention of clear, stable boundaries. Such boundaries would effectively assist in heightening natural features, and in adjusting the level of demand for public utilities and facilities. These important elements of urban design are generally disregarded in the path of land speculation. Against the depressing sprawl of the cities, long-range goals could call for clear patterns of development with logical barriers, greenbelts, and population density and size appropriate for each community area.

Cities encounter enormous social and economic costs, and environmental deterioration, as they grow bigger and become part of a metropolis, then a megalopolis. This suggests that serious efforts be made by private and public interests to redirect some of the Nation's economic expansion and population growth to rural communities. Small towns have declined with the shift in employment from farm to industry. Man has left the farm for the city, for easier, better paying work, and shorter hours, more diversified cultural and educational benefits, social exchanges, and entertainment—not because he preferred the city's physical environment. As soon as he can, he leaves the urban environment and buys a "ranchette" in the suburbs, while retaining the urban opportunities. If these opportunities were provided in rural areas, a choice would be available for an environment closer to nature and offering less tension and more community life; reduction of the metropolitan pressure would be possible.

NATURAL SETTING

The natural setting can give a city a strong individuality, the base for original urban design, and the citizen a sense of identity with his community.

In contrast with look-alike cities and monotonous suburbs, a spectacular natural setting gives unique visual character to San Francisco and Seattle with their hills and waterfronts, Harrisburg with its riverside, Denver facing the Rocky Mountains, or Tucson surrounded by the Arizona desert. The night views of the Los Angeles coastal plain from the Santa Monica Mountains reveal vividly the topography of the region and the extensive low-density development it has engendered. Although not all cities are blessed with great natural assets, many opportunities can be realized from meager resources. A small creek, instead of being straightened and lined with concrete and cyclone fence or put in a culvert, can be attractively landscaped and thereby add thousands of dollars to the value of adjoining parcels. A small grove



Pittsburgh's Golden Triangle acknowledges that city's unique natural setting.

of stately trees might well be worth the purchase price for the preservation of an island of greenery in the community, otherwise engulfed in asphalt and concrete.

Rising interest in urban amenities has led many cities to recognize, protect, and enhance their natural features. An outstanding recent example is Baltimore's Inner Harbor Project, which recently received a $17.7 million grant from the Department of Housing and Urban Development to revitalize a portion of the harbor. The plans call for the construction of a marina, a Port Authority building, a science center, a restaurant, and pedestrian plazas and walkways. The layout of these facilities emphasizes their relationship to the water and sets out the harbor as an important esthetic feature.

Pittsburgh, realizing the potential asset it had in the rundown area at the confluence of the Allegheny and Monongahela Rivers, conducted a spectacular restoration of the Golden Triangle. While in Tacoma, Wash., the potential scenic value of a waterfall within the city is ignored, in nearby Spokane, Wash., squalid banks along the Spokane River were transformed in 1967 into a narrow but pleasant riverside park by the Washington Water Power Company. The entire riverfront is now the subject of a rehabilitation program in which the city government, civic groups and Gonzaga University, together with the power company, are involved.

The preservation of natural areas can also provide side benefits, reducing floods, soil erosion, landslides, fires, and other disasters which result when some of these areas are developed.

The sun, the temperature, the winds, and the rains have exerted a strong influence on the natural vegetation, the type of urban design, architectural style, and landscaping used.

The local individuality produced by regional climate, even microclimate, can be utilized to esthetic advantage, in spite of technical advances that may make such individuality obsolete. Design geared to specific climatic situations, including terraces, windbreaks, and porticos, can make cities more pleasant to live in.

The Council recommends that State and local governments systematically inventory significant natural features and expand programs for their protection and enhancement as assets of urban and rural design, and that Federal agencies extend technical assistance for such programs.

Programs to enhance the natural features of a community range from research for disease resistant street trees to acquisition of scenic easements and construction of bicycle paths along rivers and canals. Man's ingenuity can transform natural settings under unfavorable conditions. One of America's great urban enclaves of "natural" beauty, Golden Gate Park in San Francisco, was once "a dreary waste of shifting sand hills."

Trees in the city perform valuable services. They contribute to the absorption of noise, exhaust smells, carbon monoxide, and smoke; screen unsightly uses and struc-

The Boston Common preserves natural landscape.

tures; offer a measurable degree of protection from sun, heat, winds, rain, and run-off. They add privacy in housing, give relief from the structural rigidity of buildings, just as lawns do from pavements, and provide a welcome seasonally changing decor in the urban scene. In spite of these many benefits, urban planting programs have received in many cities only token recognition.

In New Jersey, a statewide Federation of Shade Tree Commissions provides technical and legal services to community street tree and park agencies. Communities seeking help find it at the federation's office at the Rutgers College of Agriculture. For example, in addition to guidance on appropriate species of trees for a community and on a model community street tree ordinance, the federation has prepared a model escrow contract for future procurement of nursery-grown trees to assure adequate future supply of particular species.

The Council recommends that an expansion of cooperative Federal and State programs of forestry and horticulture be authorized to provide technical and financial assistance to cities and counties for the planting and improvement of trees and other vegetation in urban areas, including along streets and in parks, playgrounds, and parking lots.

The planting and care of flowers, initially less expensive than many other kinds of planting activities, often can be carried out by children and older citizens when given encouragement and some assistance in their efforts.

HISTORY

The Nation has failed to save many of its significant historical and cultural sites. An urgent need exists to preserve and restore those which remain. Our young Nation, which has always looked toward the future, already has a valuable heritage; it should protect the outstanding remaining symbols of this heritage for future generations.

In Newark, Del., the Soroptomist Club petitioned and received permission from the City of Newark to renovate the old City Water Works building for the purpose of using it as the new Senior Citizens Center. The building, long abandoned, now an attractive setting for active older people is an asset to the greater Newark area.

In Lincoln, Nebr., the City Recreation Department has transformed old fire stations, keeping the original decor, into a combination youth center and center for older people.

The operating funds for the above two programs resulted from grants awarded by the Administration on Aging, Social and Rehabilitation Service, Department of Health, Education, and Welfare.

Historic buildings, in addition to their educational and artistic importance as evidences of history, and examples of past architectural styles, materials and techniques, have considerable value in urban design. Their presence in an increasingly dreary urban scene can contribute a distinctive charm. Even when not of the highest historic or artistic value, old buildings are important when they are part of whole historic quarters where the atmosphere of the past can be evoked. Many of those sites which have lasted till the present now are threatened by incompatible encroachment or destruction.

The powers of the city can be used to preserve historic districts. Old buildings can be restored and new uses made of them, and new buildings, compatible in function as well as in architectural form, can be incorporated harmoniously in an environment primarily reflecting past traditions. Accommodations for modern uses often can be made, but care should be taken to preserve the historic setting of the area. Scenic easements, life estates and special assessment practices can assist in protecting historic properties, and encourage maintaining them in good condition. Prince Georges County, Md., is among the first counties which have passed ordinances providing tax relief for property owners who do-

Buildings that are symbols of the nation's heritage deserve vigilant protection.

nate easements for scenic or historic purposes to public agencies.

Many older cities are revitalizing their historic sectors. The eighteenth century seaports of Alexandria, Va., Annapolis, Md., and Marblehead, Mass., are being preserved largely as the result of individual efforts, while Nantucket, Mass., and Santa Fe, N. Mex., have instituted strong municipal controls to maintain and restore their historic characters. Historic areas within large cities have become desirable residential areas, such as Louisburg Square in Boston, and Georgetown in Washington, D.C. More modest examples of well-preserved residential districts that have maintained their historic architectural settings are Wooster Square in New Haven, Conn., or the Old Louisville, Ky., district. A thriving business section, with period signs, has developed in Williamsburg, Va., fully compatible with the faithful restoration of this historic colonial town. As in Williamsburg, private initiative has saved many great locations, such as George Washington's home at Mount Vernon and Thomas Jefferson's at Monticello.

Congress has recognized the importance of preserving the cultural heritage of the Nation and its contribution to the appearance of the cities. Acquisition of land for historic purposes under the Open Space Program was authorized by Congress in 1961. In the Demonstration Cities and Metropolitan Development Act of 1966, Congress authorized the Department of Housing and Urban Development to make grants for the purchase of historic structures and sites, their restoration and improvement. Also in the 1966 legislation, Congress authorized Housing and Urban Development grants to the National Trust for Historic Preservation to assist in renovating and restoring structures for historic purposes. The Urban Renewal Program of financial assistance was also expanded to credit local public agencies for relocation and restoration of historic structures in urban renewal projects. The program of urban planning assistance may now fund local historic surveys.

The seat of government often serves as a community focal point.

The National Historic Preservation Act of 1966 established the National Advisory Council on Historic Preservation and authorized the Secretary of the Interior, through the National Park Service, to make matching grants to States and local governments for the survey and preservation of historic sites and buildings. Grants are also authorized to the National Trust for Historic Preservation for inventories and studies.

Many State surveys of historic sites are underway. Massachusetts, among others, has an outstanding program of historic site recognition and preservation. Representative of the other States, Washington, in 1967, passed a historic preservation act patterned after, and with the objective of complementing, the Federal legislation. North Dakota, in 1967 also, enacted a historic sites law providing for preservation of historical and archaeological sites, structures, and antiquities of State and national significance, as well as providing for a registry of historic sites.

The National Park Service, in cooperation with the States, is conducting an inventory of nationally significant historic sites, and maintains a national register of properties considered most significant in American history and culture.

The Council recommends that State and local governments inventory historic sites and expand programs for their protection and enhancement as assets of urban design, that communities seek new and viable uses for historic structures, and that Federal agencies expand technical assistance for such programs.

FOCUS

Focal points are strong factors in the expression of a city's identity. A city may have one or several of these points. They may be natural or manmade, purely visual like the Washington Monument and Paris' Eiffel Tower, or a place to go to: Main Street, the market place, the town square, the Common. Focal points are more frequently found downtown, but they may be remote from the center of town. They may be places of government, business, higher education, civic activities, or historic landmarks. A combination of physical characteristic and mental image in varied proportions makes a focal point.

Such points can express the historic past of the city, its relationship with its natural setting, its present wealth, or its goals for the future.

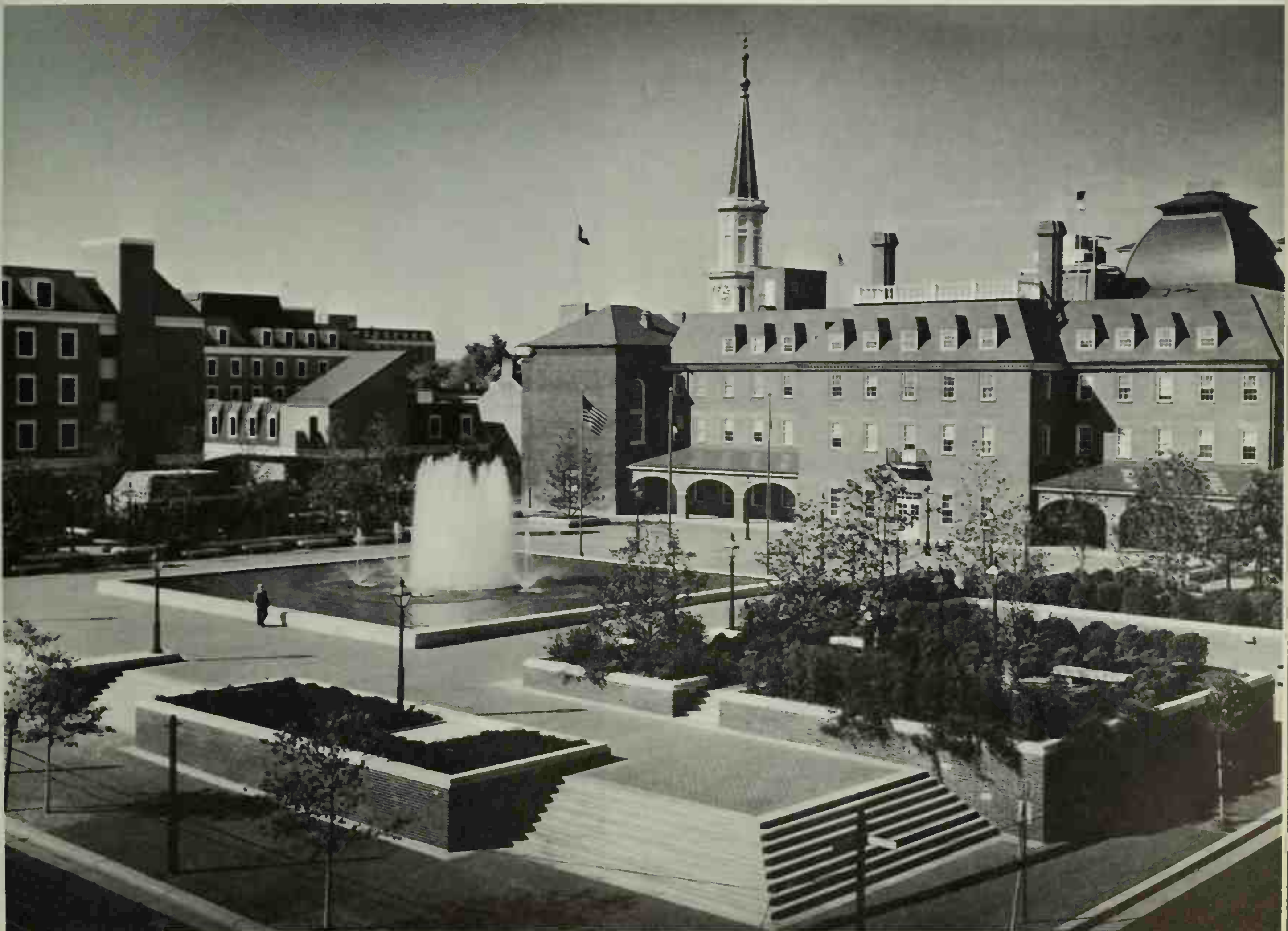
Public buildings, historic structures and a landscaped plaza are united to form a community focal point in Alexandria, Va.

Focal points organize urban experience. Their visual significance can be enhanced by opening vistas to them and framing them, using topography, night lighting, and other means.

Traditionally, focal points have reflected the institutions in the city: the cathedral, the palace of the prince, the stock exchange, the hall of justice, the seat of government, or the railroad station.

Two notable recent examples are Philadelphia's Independence Hall, made a visual focal point by the clearing of a square in front of it, and the new Gateway Arch in St. Louis. San Francisco's Ferry Building, however, was diminished as the city's focal point by construction of an elevated freeway in front of it.

Towns with no major focal point often have opportunities to emphasize intimate perspectives having as much beauty and giving as much pleasure as more dramatic focal points.



SOME SPECIFIC OFFENDERS

LITTER

Littering, a common sign of urban blight, is an expensive habit, costing the Nation's taxpayers nearly $½ billion a year. New York City, alone, spends $10.5 million—one fourth of its Park Department budget—to keep its parks and beaches clean. The Forest Service and National Park Service spend $4 million a year for sanitation and litter removal. Litter is increasing each year, fouling city neighborhoods and countryside alike, causing fire hazards and public health problems, and drastically reducing enjoyment of the environment.

There is no single, quick remedy for the elimination of litter, but a combination of measures has proven to be very effective. These measures include:

- Provision by public agencies and by certain business firms of attractive and frequently emptied litter baskets and trash containers, in sufficient number and at convenient locations throughout the community;
- Establishment of standards of maintenance by public and private agencies of streets, public areas, and private areas accessible to the public such as theaters and bus stations. Such maintenance includes sidewalk repairs, weed cutting, tree trimming, and leaf sweeping, as well as litter pickup; and
- Adoption and enforcement of local ordinances and State laws carrying reasonable, enforceable penalties against littering in public places, and against accumulation of litter on private properties.

When owners of yards and vacant lots fail to keep them cleaned up, some cities do the cleanup and add the costs to the owner's tax bill.

While the work of public agencies and private owners can maintain a high quality of community upkeep, litter can be prevented in only one way: Each individual must develop the habit of depositing in a proper receptacle every scrap of waste paper, every bottle, and every can that he discards. Litter prevention calls for education at

Littering of public areas is a severe problem in nearly every American community.

an early age, and a continuing campaign of public education.

Nationwide educational efforts in this field are led by the Keep America Beautiful organization, the National Clean Up—Paint Up—Fix Up Bureau, and the Advertising Council. Keep America Beautiful, supported by industry, acts as a clearinghouse for information on litter control and provides educational materials. The National Clean Up—Paint Up—Fix Up Bureau, another industry-financed service, provides technical assistance and materials for community-wide campaigns. Its annual National Cleanest Town Conference gives recognition to outstanding community cleanup and renovation campaigns.

As litter appears in every part of our environment—even in outer space—serious concern is expressed by citizens from all over the country. For example, in Lexington, Ky., a well-attended third annual State Clean-Up and Beautification Conference was held in May 1967.

Here and there, the upward trend in the annual volume of litter has been reversed. The most successful examples of community cleanup involve a broad range of citizen groups, schools, and local officials working together in practical programs pointed toward specific objectives.

In 1965, refuse and litter surrounded most of the businesses and many of the homes of London, Ky., an Appalachian community of 4,000 people. The city had no scheduled trash pickups; unsanitary garbage pits or roadsides were used for dumping trash. A community cleanup committee secured the help of the State health, police, and highway departments, and city and Laurel County officials. A garbage regulation was adopted by the county; incinerators were built and garbage and other refuse either hauled away to the incinerator or buried. State highway trucks picked up garbage during a Clean Up week. Nuisance abatement orders were issued to 140 property owners, most of whom quickly cleaned up the eyesores. A few were taken to court. Combined with this official activity, children and parents, 4-H and Homemakers Club members, in effect the whole community, went to work planting trees and shrubs, sowing grass seeds, cleaning and painting schools, fences, mailboxes. With this leadership, voluntary teamwork, and law enforcement, London moved toward its goal—a pleasant, clean community—and renewed pride in itself.

New York City, with the backing of an active citizens' committee, concentrates on providing plenty of trash baskets and on enforcing its litter law. Although the maximum fine is only $25, in 1966 some 60,000 litterbugs were fined more than $200,000. Many city officials consider large fines a questionable deterrent, seldom applied in practice.

Litter control can be made a game. In Maryland's Montgomery County, Cabin John Regional Park is equipped with "Porky Pig," a plastic figure with a vacuum in its mouth and a gas incinerator in its stomach. Porky roars an invitation to passers-by to deposit litter in his mouth. Children love to "feed" him, so litter is in short supply at Cabin John.

Good maintenance as a deterrent to littering is demonstrated at Disneyland, where a visitor is reluctant to be the first to throw anything on the ground. An intensive maintenance program, with many well designed, conveniently located, and frequently emptied litter baskets, is Disneyland's first line of defense against litter.

Some industries feel a degree of responsibility for the ultimate disposal of their products, and assist litter prevention activities directly. For example, the Glass Container Manufacturers Institute and the National Soft Drink Association cosponsor, along with the National Council of State Garden Clubs, a bimonthly "Litter Letter" which reports successful anti-litter efforts.

Three companies found that their divergent activities could complement each other in a successful joint litter control program started in Miami, Fla., in 1967. The all-aluminum beer cans produced by Reynolds Metals Company for the National Brewing Company can be redeemed at Kayo Service Stations in the Miami region for one-half cent gas coupons. The cans are returned to Reynolds for reprocessing. Another firm in the region, Food Fair Stores, also collects cans and other aluminum material and turns over money received from sale of the scrap to the local children's hospital. On the basis of the success of the Miami experiments an aluminum scrap salvage operation is under study in Los Angeles.

Study of recovery and processing of other metal, paper, and plastic products by industry could develop similar programs. Research into rapid processes of disintegration of materials might well produce new solutions to the problem.

SIGNS

Facades of professionally designed commercial buildings are ruined by latter-day addition of variegated signs, and both the architecture and the message get lost. The skylines of many cities are invaded with out-of-place displays of garish neon and flashing lights, which often have a blighting effect. Even street benches lose their functional simplicity when made to frame a commercial sign. Corporate and small business publicity has wallpapered the urban scene, seldom directing its art to the enhancement of the community.

The clutter is not limited to private signs. Cities cannot control their own official signs, generally posted with a conspicuous lack of coordination or taste by a multitude of public authorities. Traffic safety, as well as appearances, can be improved through the elimination of tension and confusion caused by a jumble of identification, warning, and directional signs. A visual survey of public signs along the streets of a community, and the formulation of guidelines to control them by the various agencies, could stimulate a program of redesigning, relocation, and elimination of signs. Such an effort is being made in the Baltimore Metropolitan area. The

W.H.& J.G.HODGE
HARDWARE
LEHMAN'S.
Firestone
McCOY'S SHOES
SPURGEON'S
LEHMAN'S

The benefits of sign control and coordination are needed along commercial streets in most American communities.

Well designed signs introduce positive qualities into the community.

Philreve
designer
1556

revamping and reduction of official and commercial signs, combined with placing utility wires underground, can achieve dramatic improvements in the visual quality of the urban horizon. Some of the corporations which have used billboards in the cityscape or the landscape show a remarkable restraint and design appreciation when it comes to their own office headquarters. In New York City, Lever Bros., Seagram's, and the Chase Manhattan Bank have selected architectural excellence rather than large signs to advertise their wares and services. In San Francisco, Shell Oil has darkened its sign to the benefit of the amber night glow of its skyscraper, and Crown Zellerbach is amply publicized by the advanced design of its headquarters building. In Watertown, N.Y., the merchants agreed to stop outbidding each other for attention, and replaced all the projecting, hanging signs with new, tasteful ones flat against the buildings, turning visual confusion into clear legibility.

A $368,000 grant, made in 1967 by the Department of Housing and Urban Development to the Boston, Mass., Redevelopment Authority, under the Urban Beautification Demonstration program, is helping pay for a study of ways to improve the quality of signs and lighting in cities. This comprehensive study will cover the relationship of public and private signs and lighting to the urban environment; the development of policies and model municipal codes for regulating private outdoor signs and lighting in the city and policies for the design, content, and location of public signs and lighting.

The demonstration will also develop prototype designs for a total-system treatment of signs and lighting in typical sections of a city; will design and install innovative signs and lighting in cooperation with local business or neighborhood associations; and prepare a report and other graphic material which could be used by communities throughout the Nation.

Improved control and design of the system of signs and lighting could do much to enhance the general appearance of a city, improve visual communications, and reduce the stress that the urban landscape imposes on its citizens. Existing regulations for the control of signs are limited, piecemeal and usually aimed at suppression rather than enhancement of the legitimate function that signs should serve. Public and private lighting is often inadequate and sporadic. The Boston project is a pioneer effort in applying creative talent in such fields as graphics, architectural design, urban planning, outdoor lighting, and law, to signs and lights as a factor in the quality of the urban environment. Bright lights, signs and displays are part of the urban life, but their propriety and balance in the cityscape are contested issues which the study should help clarify.

NOISE

Sounds are an integral part of our urban life. The parade, the concert in the park, the street peddlers, the clanging of a cable car, all belong to the exciting history of the city. Sounds have intensified in this industrial age to a point where they now constitute a form of pollution of the urban environment. A quiet atmos-

The traffic in the streets is a major source of excessive noise in the cities.

phere is recognized as the sign of a pleasant community; sounds have become noise. The din in the streets, in the skies, and often within buildings, reduces efficiency, frays nerves, dampens dispositions, and according to medical studies, is insidiously reaching deafening levels. Aside from public health and economic productivity, the quality of life is affected by noise, especially when added to all the other forms of stress associated with life in the city.

Most of the cacophony around us could be greatly reduced or eliminated. It is no more a necessary price of economic growth than foul waters or foul air. The efforts beginning to be made to control noise are not only directed toward dampening existing noise, but also to preventing it at potential sources. Designers and manufacturers of machines and vehicles, and architects, engineers and planners who design and locate offices, apartments, factories, highways, and airports, can all greatly contribute to this objective, whether in government or in private practice.

A key to effective controls is the measurement of noise and the setting of standards for permissive noise levels. Many local zoning and building ordinances are "specification codes" which rigidly require specified materials, methods and equipment. A more useful approach calls for "performance codes" which only require the achievement of certain results such as minimum noise, without regard for the specific means used to achieve them. Typically, existing municipal noise ordinances covering construction operations only restrict hours of operation, but set no maximum allowable noise levels although silencing equipment is often available. The City of New York in 1966 adopted a new building code setting standards for noise insulation in walls and floors of apartment buildings. New light construction materials and techniques tend to lessen insulation, while at the same time, increased use of home equipment such as food blenders, air conditioners, garbage disposals, stereos, and television has made insulation a necessity rather than a luxury.

Noise-preventive planning standards are required by the Department of Housing and Urban Development as a condition of Federal aid for certain State and local projects, including urban mass transportation facilities. Other Federal agencies should include in their programs, whenever applicable, provisions which would encourage and assist State agencies, communities, and industry to combat noise through prevention. Attempts of cities to limit excessive noise can be traced to 1929 when New York City established a Noise Abatement Commission. But nearly a generation later, in 1948, a New York court awarded an employee compensation for partial deafness caused by the high noise level in the shop where he worked. A study in 1965 estimated that 40 percent of the "excessive" noise in New York City is caused by trucks with defective mufflers. One of these can generate as much noise as a hundred cars. High speeds and rapid acceleration are other factors in motor vehicle noise. Several States are considering legislation that would set noise level limits for motor vehicles. Because so much traffic, especially trucking, is interstate, national regulations may be required for effective controls.

Memphis, which calls itself the "quietest city in the United States," and where it is illegal to honk an automobile horn, is, with Milwaukee, among the cities rigidly enforcing motor vehicle noise laws.

While the municipal administration of New York actively pursued a noise control program, its garbage trucks were criticized as major offenders, with their early morning clanging. At the request of the administration, a truck manufacturer produced a new garbage truck which, for only $102 added to the $14,000 cost, is considerably less noisy as well as less smelly.

A study conducted for the Department of Health, Education, and Welfare in 1967, "A Strategy for a Liveable Environment," recommends establishment of tolerance measures and criteria for urban noises. A bill before the Congress would set up an Office of Noise Control in the U.S. Public Health Service to act as a clearinghouse on all noise information. In addition, the Interagency Aircraft Noise Abatement Program, which is chaired by the Department of Transportation, is deeply concerned with noise problems and is in a position to expand its activities to other areas of transportation noise.

The Council recommends that the Federal Government expand its noise control activities and that such efforts include assistance to State and local governments in establishing noise abatement programs.

A study being conducted by the Department of Housing and Urban Development covers noise in the city—its sources, effects, and control, including recommendations for actions needed to cope with the problems.

The President in his March 11, 1968, Message to Congress on Conservation and Water Management, directed all departments of Government to take account of noise factors in choosing the locations and design of buildings, highways and other facilities whose construction is assisted by Federal funds.

As big jet aircraft make themselves painfully heard over an increasing number of communities, they have become a major source of noise. The Transportation chapter discusses the airplane as a source of noise.

ACTION

COMMUNITY EFFORTS

The provision of basic services in the city has been such a strain in recent times that the utilitarian functions have overshadowed, and almost eliminated, the amenities of urban living. The flight to the suburbs, a combination of rural aspirations and urban dissatisfaction, ensued. To have electricity, urban dwellers endure smoke; to have employment, they endure industrial smells; to have their own cars, they breathe carbon monoxide; to flush their toilets, they close their beaches; to build freeways, they give up their parks and historic monuments.

Having changed the environment to provide more services, the cities are now attempting to change it again to bring back the amenities lost in the process.

The battles against noise, smells, litter, and the clutter of signs and unsightly land uses, are all part of the war against the pollutants of the urban environment. These battles have common fighters: The individual citizens, private organizations and businesses, and public agencies. These battles are normally fought at the municipal level, while the management of liquid, gaseous, and solid wastes must be resolved at the scale of the metropolitan region.

Cities can unite their citizens, raise and expend public funds, pass laws, and enforce them. The city, as a corporate entity, has the power to formulate its own goals and translate them into action. This can best be accomplished through the planning process. A city plan should be adopted by the elected representatives as an official document embodying community goals, and guidelines to reach them. It should be prepared with the contribution of all segments of the population, and submitted to public scrutiny. Such plans can incorporate concepts of building and population density, architectural design, functions of green spaces, criteria for the location and appearance of public facilities; and the relationship of building masses to open area, of historic landmarks to present day uses, and pedestrian traffic to vehicular traffic.

Special programs for amenities, prepared and implemented as part of a city or general plan, can effect changes in the city's environment. Such programs can include an inventory of the physical features of the city followed by precise plans for the restoration and redesign of public buildings, historic areas, streets, malls, plazas, and other open urban spaces. These could often be greatly enhanced through the use of attractive pavement, placing utility wires underground, pedestrian ways, landscape planting, special lighting, screening, fountains, and other artistic ornamentation in harmony with their character. City-wide standards can be adopted, historic and other special districts created, and new

The beauty of a city ultimately depends on what the citizen understands and wants.

municipal building and planting activities designed to re-enforce the plan.

Traditional municipal powers can be used beneficially to affect environmental quality. Municipal policies on utility services—by supplying or withholding water, sewer, street lighting, and other services in certain areas—can protect open space, regulate housing density, and create a better environment.

The taxing power can be an effective natural beauty tool instead of a negative influence. Changed assessment laws and procedures can contribute to preserving historic buildings by taxing them for their present or compatible uses rather than for their speculative values. The tax structure can encourage high architectural and amenity standards rather than penalize owners who refrain from squeezing every penny's yield from a site; it can significantly help in protecting open space. However, indiscriminate tax exemption, even though well intended, is a poor form of concealed subsidy whose objectives can usually be better achieved in other ways. New forms of taxation, particularly the use of special district and special benefit taxes, can be specifically related to the objectives of natural beauty programs.

Public authority over such operations as drainage, waste disposal, and control of nuisances and hazards, can strongly influence environmental quality. An increasingly wide range of activities, including noise, is coming under public control. More than 20 years have elapsed since the American Public Health Association's Committee on the Hygiene of Housing recommended planting and other beautification measures as contributing to "basic psychological needs." Reduction of noise, screening of objectionable features, suppression of dust, and control of glare from sunlight were recommended on the basis of these needs. Following advances of the medical sciences, the courts have steadily broadened the concept of public health so that today in its name effective support can be offered to a wide range of natural beauty efforts.

All over the country, communities are working toward better design. Chicago has incorporated in its city plan an urban design policy which clearly states the reasons for, and the objectives of, urban amenity considerations in city planning. The policy has been translated into specific proposals, such as expansion of parks and establishment of malls and pedestrian "greenways."

San Francisco's businessmen and officials intend to utilize the opportunities of the reconstruction of Market Street, once a planned subway has been installed, for a major esthetic revamping to make it one of the Nation's most attractive main streets.

Detroit's Transportation and Land Use Program represents a pioneer effort to measure qualitative aspects of natural as well as manmade and human resources, and integrate these into a comprehensive plan for the region. Factors such as slope, views, and trees are being catalogued along with such qualitative sociological data as attitudes as well as the more conventional planning data such as population numbers and transportation patterns. This attempt at a total environmental approach may serve as a model technique for the planning of other areas.

The Metropolitan Area Planning Council of Boston is studying the natural framework of the city's harbor and rivers and its existing open spaces in relation to overall regional development goals and proposals in conservation, recreation and other purposes.

In Fremont, a newly established city in California, the municipal land use standards were designed at the start to offer the developers incentives, rather than restrictions, for initiative and innovation. Expressly stated development objectives include retaining historic buildings, maintaining open space, preserving hillsides and other natural features, and producing commercial, industrial, and residential developments having individual character and outstanding design.

In Honolulu, following criticisms and apprehensions expressed at the Hawaii Natural Beauty Conference, a program has been launched to redesign streets and downtown open spaces, including new signs, kiosks, street furniture, and other details. The telephone company has cooperated in this effort, redesigning telephone booths to harmonize with the new street furniture. Honolulu is thus expressing in otherwise trivial municipal features, its exotic and cosmopolitan accent.

Smaller American cities and towns will be provided with assistance for improving and making better use of their municipal codes to improve the quality of urban life as a result of an urban beautification demonstration study financed by a $41,850 grant from the Department of Housing and Urban Development to the University of Arkansas. The study will identify problem areas in which municipal codes can contribute to solutions. Cited as typical problems are vacant lots with litter, weeds, and underbrush; dilapidated structures; street deficiencies; overhead utilities; garbage and trash accumulations and similar eyesores.

The study will identify code provisions that apply to these areas, evaluate the codes in terms of their effectiveness in dealing with the problems, and recommend desirable code provisions or develop model codes. The study will also evaluate administration and enforcement procedures used in implementing municipal code provisions. An end product of the study will be a manual for local municipal officials and civic leaders for dealing with natural beauty through municipal codes. Case studies of three cities under 100,000 population will be made—at Springfield, Ill., Overland Park, Kans., and Rogers, Ark.

If local natural beauty programs are to have maximum long-term effect on the appearance of communities, they must first re-examine normal, day-to-day governmental operations and regulations. Many existing local ordinances do not serve natural beauty objectives. In fact, some place so much emphasis solely on health and safety—which, of course, are vitally important—that they exclude other important factors and actually detract from other environmental quality efforts. Yet little systematic study of codes has been undertaken from this viewpoint.

The Council proposes that Federal agencies provide technical assistance to States and local governments in revising housing and building codes, zoning ordinances, subdivision regulations, and other laws and regulations in the interest of improving environmental quality.

Community Design Review Boards: A design review board can be an important tool for action toward better community appearance. Such boards have already proven their value in many cities.

The American public has in recent years looked to local government for leadership in matters of environmental esthetics. The U.S. Supreme Court has affirmed the constitutionality of this expanded concept of the public welfare, in a landmark opinion (Berman v. Parker, 1954). The court found that the beauty of a city is a proper concern of government, and affirmed the right of the local government to extend its exercise of public power to esthetic values. The involvement of government in esthetic matters runs into several problems: Who is to be the judge? What standards should be followed? What should be the scope of such involvement?

Who Is To Be the Judge? Government generally lacks sensitivity to esthetics; its administrative machinery typically is not well geared to consider such values. Assistance from outside government generally is considered useful to pass judgment on art and design. Understanding of esthetic theory and experience in its application calls for practitioners and teachers in the environmental design professions, whenever available, to help government efforts. But the physical appearance of a community is primarily a local matter which properly is the responsibility of citizens of the locality.

Esthetics, more than some other aspects of human endeavor, is subject to personal and divergent opinions. It is important that a group of people, rather than a single individual, be called on to offer a collective judgment reflecting the diverse views of the community in matters of design.

Such a group can be appointed by the governing body of the locality and authorized by law to perform a specified governmental function. Its judgment should be subject to review by the governing body and by the courts. This responsibility is sometimes given, as an adjunct to its other functions, to the planning commission, which is concerned with the overall aspects of community development, or to a fine arts commission concerned with all artistic expressions, including performing as well as plastic arts. A more specialized group concerned only with community esthetics often may be more effective.

Standards: Esthetic standards are intangible, not well suited to enactment as laws. They vary with the individual, with the cultural group, the locale and the period.

But in the case of environmental design—which involves architecture, landscape architecture, civil engineering, and civic art—the results are for the appreciation of the entire community; they therefore are expected to express the current taste of its citizens. At the same time, the quality of the cityscape should not be aimed at meeting the norm, the unimaginative average, or at winning a popularity contest; it should reach for the aspirations of the citizens and elevate their spirit, not unlike the purpose of the great cathedrals of earlier times.

Design boards should be guided by broad criteria rather than by explicit standards, although there are instances of regulated design, such as the so-called "no-look alike" ordinances exemplified in a Scarsdale, N.Y., ordinance adopted in 1950. In some rare cases, general criteria for harmony, balance, diversity, and other design elements, can be supplemented by specific historic or regional considerations, such as the Spanish influence in Santa Fe, N. Mex., or the colonial style of Sag Harbor, N.Y. Success in carrying out the mandate given to such boards depends heavily on the quality of their membership, creative capabilities, status in the community, and ability to influence the decisions of public officials and private investors, rather than on design regulations.

Scope: A local design board can:

- Analyze the effects of public and private developmental activities on the local environment;
- Formulate goals on the physical appearance of the community for consideration and adoption by the governing body as policies or laws to be incorporated in zoning, land development, and other controls.
- Review public building, park, redevelopment, civic art, street furniture, and other proposals of local public agencies, or private projects proposed over or upon public property or right-of-way; advise the executive officer and governing body of such agency on the design quality of such projects, and its relationship to its setting.
- Within the context of specific public policies and ordinances, review private projects subject to building or alteration permits. These policies may be related to the preservation of a historical district, the setting for civic buildings or to other districtwide or citywide design characteristics, such as vistas or styles, and
- Promote the application of good design, and respect for natural and historical resources in the community through awards, conferences, civic campaigns, school programs, and other activities.

There are numerous examples of design or architectural review boards, and historical or fine arts commissions in American communities. Private land developers themselves have used this approach to control design, and many subdivisions, particularly larger ones, carry deed covenants referring architectural and sometimes planting design on all parcels to a private review board appointed by the subdivider or selected by the residents. New-town builders have often insisted on architectural control regulations when their projects are incorporated as municipalities.

Determined citizens can extend beauty to every corner of their community.

Many State statutes enable cities and counties to adopt measures controlling the appearance, as well as use, of private property and the preservation of historic structures. The consistent and reasonable application of these measures and their public purpose are usually the test of their legality. Seattle, Wash., Santa Fe, N. Mex., Boston, Mass., Lake Forest, Ill., Washington, D.C., New Orleans, La., and New York City are among the steadily increasing number of cities having design boards and regulations in one form or another.

Design review boards are in a position to recognize and support new and imaginative design solutions to the environmental problems of the community.

The American Institute of Architects through its "War on Community Ugliness" campaign is encouraging its local chapters to promote design review in their home towns. And the National Council on the Arts is planning to develop a long-term program in design fields which deal with the physical environment. This program may lead to wider and better application of design review techniques.

Specific information about means of authorization, funding, organization, and the practical experience of boards already in existence would be useful to public officials, community leaders and design professionals. It could greatly assist in the extension throughout the country of community design review boards. A federally supported study, conducted in conjunction with other levels of government, professional societies and universities, should be made to collect and evaluate this information, and to make it widely available.

STATE PARTICIPATION

The State governments have traditionally limited their intervention into local affairs. Although cities are regarded in most State constitutions as "creatures" of the State, State authority has limited itself to passing laws enabling cities and counties to perform within their territory, if they so wish, certain functions which the State governments were incapable or unwilling to perform. Only in the cases of municipal corporate bankruptcy during the depression did the States forcefully interfere in the affairs of local jurisdictions, and then only in the financial field.

Many State governments need to reassess their roles, raise their professional capabilities, and accept the responsibility for using the power and funds at their disposal to carry out at the local level a wide range of environmental objectives. An indication of the growing response of State governments to the needs of the local governments is the creation, during the past few years, of Cabinet-level State agencies concerned with community affairs. Eighteen States, including New York, California, Alaska, Rhode Island, Pennsylvania, New Jersey, Connecticut, Minnesota, and Washington, have created such agencies to operate programs directed to local governments, and to provide coordinated responses to their needs.

The States need to make sure that their own programs, as well as the local ones, do not do violence to the environment. The California Division of Highways, for example, by State law could only consider limited cost-benefit factors in selecting highway routes until 1965, when a new law was passed allowing consideration of "community values" in addition.

Federal assistance has been made available to a wide range of community improvement projects that also create employment and training opportunities.

FEDERAL PROGRAMS

Many Federal programs are available to assist communities striving for environmental improvement. The newer programs include the Urban Beautification Program and the Neighborhood Youth Corps Program.

By the end of 1967 more than 120 communities had received Urban Beautification Program grants from the Department of Housing and Urban Development. Under this program, authorized in 1965, cities can obtain grants of up to 50 percent for a wide range of environmental improvement projects. To be eligible, cities must have 3- to 5-year community-wide beautification and improvement plans.

Pittsburgh has received under this program a $465,000 grant to aid in tree planting in many city neighborhoods, expanding recreational facilities through reconstruction of a major park, landscaping of a major thoroughfare and riverfront area, and general cleanup and beautification treatment for other areas.

A grant to Biloxi, Miss., under the Urban Beautification Program will cover half the costs of a new $196,000 program to upgrade the quality of several city parks, a historic lighthouse site, and other open areas. Lighted fountains, hiking trails, landscaping, sun shelters, street furniture, and other facilities will be installed or constructed to help enrich living in the area.

Enhancement of the environment also has received benefits through the Economic Opportunity Act of 1964, which provides for work-training programs that "contribute to the conservation and development of natural resources and recreation areas." The Neighborhood Youth Corps, administered by the Department of Labor's Bureau of Work Programs, is translating this legislative goal into action. About 10 percent of all the enrollees have been engaged in projects directly related to conserving America's natural resources and improving cities and countryside. They work as gardeners and as conservation, park, and recreation aides in hundreds of programs sponsored by State and local departments of conservation, natural resources, parks, and highways.

THE STORY IN THE NATION'S CAPITAL

Washington, D.C., was first conceived as a place of beauty. As the Nation's Capital, it draws more than 20 million visitors a year. With its backdrop of beautiful buildings, parklands and historic associations, the city has a rich heritage on which to build.

But like many other cities in America, Washington has a decaying downtown core, freeway controversies, insufficient recreation facilities, air pollution, polluted rivers, unemployment, slums, and dismay and apathy over tackling these problems.

In 1965, Mrs. Lyndon B. Johnson decided to encourage a practical demonstration of what could be accomplished by an environment-conscious citizenry in her "hometown," now Washington. She convened a Committee for a More Beautiful Capital, comprised of civic leaders, philanthropists, architects, and other professionals, as well as government officials whose agencies have a role in the city environment. With this combination of interest and talent, the Committee, though without legal powers, worked creatively through established agencies, such as the National Capital Housing Authority, the Board of Education, the National Park Service, and the Department of Highways and Traffic, to inspire and institute a wide range of innovative demonstration programs which could later be embraced in the more routine agency activities.

The first projects undertaken by the Committee for a More Beautiful Capital were colorful floral plantings in the monumental areas of the city most often seen by visitors.

At the same time, projects were initiated to bring a breath of beauty of a more fundamental nature to "the other Washington," the miles and miles of row housing where the majority of the population lives.

In the summer of 1966, a rat eradication project sponsored by the Committee was started. This was followed in 1967 by "Project Pride" in which both citizens groups and governmental agencies cooperated to further attack the rodent problem through poison baiting, house and yard cleaning by the residents, vacant lot clearing by youth groups, and rubbish and debris disposal by the Sanitation Division. Despite the accomplishments, increased public action such as provision of trash receptacles, better trash collection and education will be required before the problem is controlled.

A philanthropic contribution provided the Committee with high caliber professional design services, an item frequently lacking in public agency budgets. A landscape architect was retained to study a prototype neighborhood. This study identified many derelict open spaces, such as interior block spaces behind row houses, which could be developed to meet the widespread recreation deficiencies of inner city neighborhoods. The study also suggested that school grounds be extensively improved for a rich variety of school and after-school

Like every other large American city, the Nation's Capital is confronted by a maze of environmental problems.

The appearance of the Georgetown Waterfront along the Potomac River is typical of such areas in many cities.

activities, and where possible, that neighboring schools be linked by closing off minor streets and joint facilities developed. As a result, a number of school grounds projects have been undertaken to provide night lighting of play areas and landscaping, remove chain link fences, and create children's gardens. In a few cases, extensive and imaginative new playgrounds have been donated.

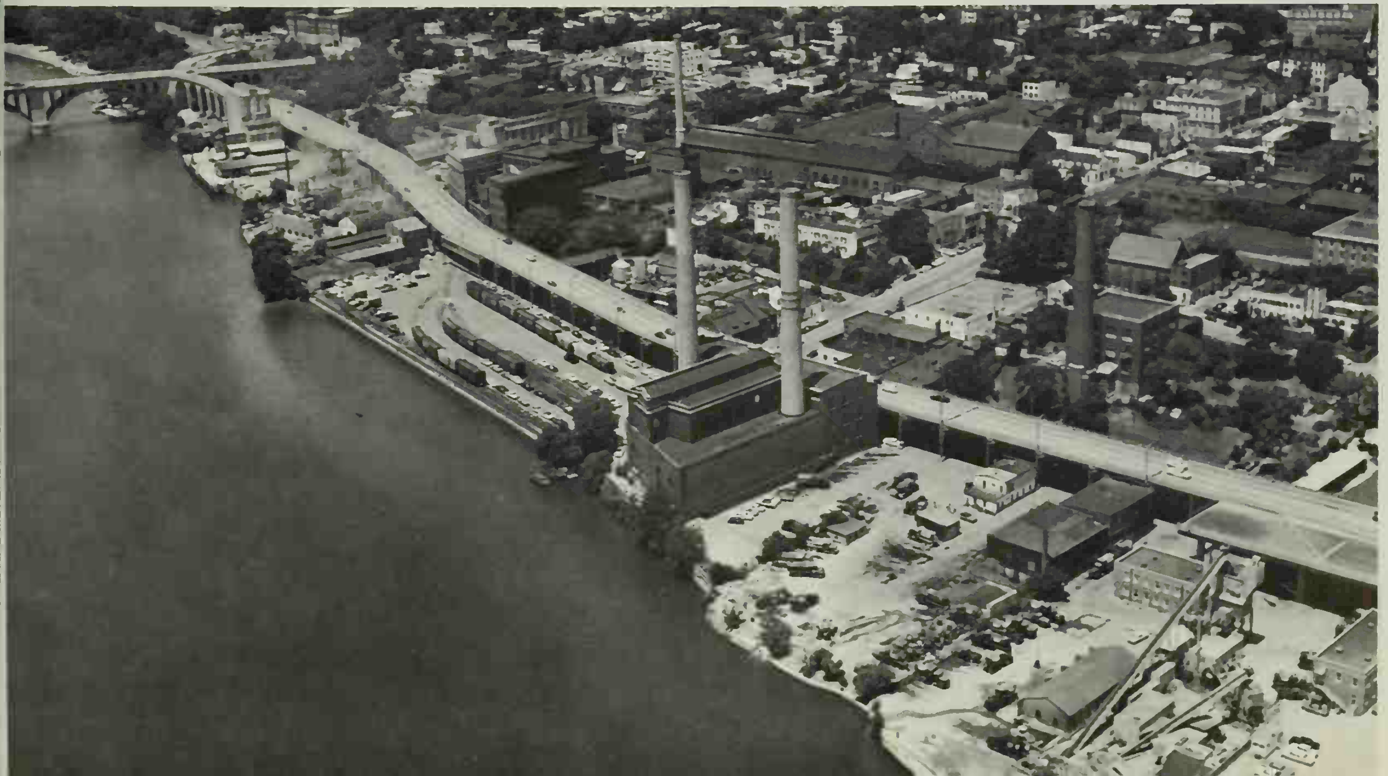
The design of a new city park along the Anacostia River, featuring recreational, cultural, and entertainment facilities, was also sponsored by the Committee. A proposed freeway, designed simultaneously, will have tunnels, decks, and other facilities to provide public access to the river shore park.

The Committee for a More Beautiful Capital has had an important catalyzing role in overcoming the inertia which often greets new programs.

In 1965 the District of Columbia established an Inter-Agency Committee on Beautification Programs. It advises the District government and is charged with the coordination of government and community programs, and the preparation of a beautification plan through which Urban Beautification Program grant funds can be obtained from the Department of Housing and Urban Development.

The District Department of Highways and Traffic has a program underway to enhance the approaches to Washington. The points where a dozen major roads enter the city are being attractively landscaped. The Department has retained a tree expert to determine the cause of deterioration and death of the city's street trees and to propose corrective measures.

Through a grant from the Department of Housing and Urban Development, a demonstration project completed in 1967 improved a two-block retail business area along F Street in downtown Washington. This project, which includes construction of a wide median strip in the center of the street with attractive paving blocks, trees, sitting areas, new lighting, telephone booths, and a kiosk, makes pedestrian movement easier and creates a parklike setting on a busy urban thoroughfare.



Washington's new F Street Mall was developed along a two-block retail business area downtown.

A number of businessmen have voluntarily spruced up their premises with trees and flowers as a result of the Capital's natural beauty program. The major oil companies spent $1.5 million in 1967 to clean up and plant around their service stations. The Committee for a More Beautiful Capital sponsored a design study of various techniques for screening parking lots. As a result, a number of downtown lots are now handsomely planted or fenced.

A new supermarket offers a vest-pocket park, maintained by neighborhood children, and has dotted its parking lot with shade trees. The consumer response has been so good that similar features are planned for other stores in the grocery chain.

In one area of Washington, approximately 200 organizations have formed a Far Northeast Beautification Committee to coordinate their activities. A broad landscaping master plan, prepared by a consultant for this priority area and approved by the National Capital Planning Commission, will be the base for landscape development by all agencies in this part of the city.

A Neighborhood Youth Corps project in Rock Creek Park has helped clean up and beautify the park. This work-training project, employing 400 jobless youth, was administered by the National Park Service.

In another employment demonstration project, a hundred teenagers from low-income families participated during 1967 in a summer employment and educational enrichment program called Trail Blazers. They created a vest-pocket park, cleared a picnic grove, and built benches and nature trails. They also held athletic and civic educational events. A philanthropic donation made the program possible and provided a weekly stipend to the young participants. The program is continuing on weekends during the school year. The Eastman Kodak Company is supporting the project with an experimental program in graphic communications, expected to help these young citizens enjoy their environ-

PEOPLE
GIANT

Neighborhood residents voluntarily agreed to maintain this small rest park which was constructed by the supermarket next to its parking lot.

ment and develop more interest in community improvement.

A long needed partnership between private interests and public agencies has accomplished much in improving the environment of the city in the past 2 years. From the private sources have come imagination and technical skill, along with funds to experiment and demonstrate new programs. From government has come the muscle of public powers, tax dollars, and city-wide programs for roads, parks, schools, housing, sanitation, and other activities. Resultant neighborhood projects providing oases of greenery and cleanliness in the slums, have given participants more confidence in their own capacities for self-help.

Other recent achievements in the Capital range from new attractive wastebaskets along the sidewalks to beautiful flowers in many of the small triangular plazas, and to the John F. Kennedy Cultural Center, a significant addition to the monumental cityscape. Looking toward the future, this list should also include some projects still on the drawing boards including rehabilitation of the Potomac River and its Georgetown waterfront, the use of a surplus National Training School site for a "new town in town," a grand design for Pennsylvania Avenue, the renewal of the Mall and construction of a Capitol reflecting pool, renovation of old Union Station as a visitor center and development of a rapid transit system including a subway system. These promise to contribute greatly to the amenities of the city as well as to the convenience of its citizens. However impressive these initial steps are, private donations and civic and governmental activities to date fall short of the tremendous needs. The first steps have, however, shown that an attractive, decent living environment can be achieved and maintained for all in the city—with continuing efforts.

Thousands of flowers have been planted in the city's many small triangular plazas.

The Metropolitan Region

IN ST. LOUIS some industries truck refuse across the Mississippi River to Illinois where it is burned in open dumps; the resulting polluted air drifts back across the river to St. Louis.

Boston burns its trash in incinerators that shower soot and ashes on residents of nearby cities. The Boston Metropolitan Planning Commission, facing a critical garbage disposal problem, wants to install additional incinerators with pollution-control filters, but no local government wants them in its backyard.

Atlanta daily dumps tons of poorly treated sewage into the Chattahoochee River, which supplies drinking water for neighboring cities downstream.

In the San Francisco metropolitan area, Marin County—where mountains, bay, and ocean meet just north of the Golden Gate—has some of the most spectacular natural beauty in the Bay Area. People from the entire region go there for recreation. But Marin County is permitting some of its best scenery to be subdivided because its property tax base is inadequate to finance regional parks.

Around each of these metropolitan areas unplanned subdivisions and highway strip developments continue to sprawl over local boundaries and clutter the landscape.

Similar examples of environmental pollution, monotony, and ugliness can be found in every metropolitan area in the United States. In most cases the problems extend across political boundary lines and thus are insoluble by a city or county acting alone. Disposal of wastes and urban sprawl are largely metropolitan regional problems that can only be solved on a regional basis.

More than 134 million of the Nation's 200 million people live in metropolitan areas.* By 1980 these areas will, if present trends continue, spread to make room for another 45 million people. Between 750,000 and a million acres will continue to be paved and built upon each year, and the Nation's urbanized land area may increase by 50 percent.

By the year 2000, according to an Urban Land Institute projection, 90 percent of Americans are expected to live in cities. By the year 2000, 60 percent of the American people are expected to be living on only 7 percent of the land, concentrated in the three largest metropolitan areas: One megalopolis reaching from west of Chicago to Maine and down the Atlantic coast to south of Norfolk, a second stretching down California from 150 miles north of San Francisco to the Mexican border, and a third extending the length of the Florida peninsula.

This staggering prospect carries with it the possibility that the metropolitan areas can destroy themselves as decent places to live, owing to an inability to plan and govern on a regional scale.

It seems clear that in these urban agglomerations the problems of air pollution, water pollution, disposal of solid waste, and the destruction of open land will grow to such proportions as to demand radical innovations in planning and governmental techniques and organization. This chapter will report on these four metropolitan problems and some possible methods of coping with them—new towns, regional governments, and environmental development based on ecological principles and knowledge.

ENVIRONMENTAL POLLUTION

AIR POLLUTION

Fly over any metropolitan area in the Nation, with one exception, and you can see plumes from smokestacks or dump fires fouling the air; and the pollution that can be seen is only a small fraction of the whole.

The single exception is the City of Los Angeles. After a 20-year campaign there, stationary sources of air pollu-

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*Defined by the Bureau of the Budget as Standard Metropolitan Statistical Areas consisting of "central cities," each with a population of at least 50,000, plus the population of its adjacent suburbs.

Smog afflicts cities of all sizes.

tion generally are under control. Nevertheless, a murky haze still hangs over the city frequently. Despite its pioneering efforts to control its stationary sources of pollution, Los Angeles still has a serious air pollution problem because of its millions of automobiles.

At its worst, air pollution is fatal. During the 1966 Thanksgiving weekend, for instance, the Public Health Service estimates that 168 persons in New York City died because of an unusually high concentration of pollutants in the air. An atmospheric temperature inversion that weekend held pollutants close to the ground.

Though death in such incidents is the most dramatic effect, air pollution also contributes subtly and seriously to the rising incidence of such respiratory diseases as lung cancer, bronchitis, and emphysema. Beyond that it stings eyes, is offensive to smell, and blankets cities with murky gloom. It can shorten the life of everything it touches. It can kill and stunt trees, gardens, and crops. It can soil clothing, smudge buildings, and even peel paint and corrode machinery.

Pollution Sources and the Management Gap: The Nation's 90 million cars, trucks and buses cause the largest share of air pollution; industries that burn coal and oil are responsible for most of the rest. The major industrial polluters include pulp and paper mills, iron and steel mills, oil refineries, smelters, chemical manufacturers, and power and heating plants. Aircraft also contribute to the problem. For example, the Federal Aviation Administration estimates that on a typical day some 35 tons of pollutants are spewed over the National Capital area from planes landing and taking off at Washington's National Airport.

Across the Nation, the U.S. Public Health Service estimates that a total of more than 140 million tons of pollutants a year are dumped into the atmosphere—

Improperly maintained automobiles add to sources of air pollution.

nearly 1,500 pounds for each American—and that every U.S. city has an air pollution problem serious enough to require careful and regular investigation, whether or not its citizens can see or smell the pollutants.

Although it is technically practical and economically feasible to control most stationary sources of pollution, few communities have done so. There is an imperative need for air quality management programs organized on a regional basis.

Three management tools are available: Air pollution criteria, which are scientific descriptions of the effects each specific kind of pollutant has at various concentrations; emission standards, which prescribe legal permissible maximum concentrations of pollutants which should not be exceeded at the smokestack or exhaust pipe; and ambient air quality standards, which prescribe permissible at-the-nostril levels of total combined pollutants which should not be exceeded. The Air Quality Act of 1967 provides the authority for the Federal Government to establish the criteria on the basis of which the States have the responsibility for setting air quality standards.

Recent activity has been marked on several fronts:

Automobile Pollution Controls: In 1965, Congress authorized national standards for motor vehicle air pollution control. As a result, automobile manufacturers have installed pollution abatement devices on all gasoline-powered, 1968 model automobiles and light trucks. However, despite this first step, because the number of automobiles is increasing at a rate more than twice as fast as population growth, total pollution caused by automobiles will be worse by the mid-1980's unless controls are progressively tightened. Broader and more effective standards have been issued for 1970 model vehicles, and these include smoke controls for diesel trucks and buses.

Only California requires controls on cars older than 1968 models. Some business firms, however, including several Bell System telephone companies, have taken the lead on a voluntary basis and are beginning to equip their entire motor vehicle fleets—old cars, as well as new—with controls. Development of new sources of vehicle power that are pollution free, or nearly so, offer promise for the future. At the present rate of development, however, it is expected to take at least 10 years before they would be in use on a scale large enough to significantly reduce air pollution. (See Part II, 251.)

The Diesel Pollution Problem: In 1967 the Secretary of Health, Education, and Welfare set a target date of 1970 for issuing the first national diesel exhaust control regulations. Diesel engines, the principal power source for buses and heavy trucks, are noisy, their exhaust is often dirty, and their fumes are offensive to smell. Because American cities have far fewer diesel buses and trucks than automobiles powered by gasoline engines, diesels emit far less pollutants and are, therefore, not as serious a threat to health as conventional cars. However, few forms of air pollution make so many people so indignant. In addition to the forthcoming national standards, *Pollution is not confined by city, county or State boundaries.*

there are other signs that the days of the uncontrolled smoke-spewing diesel may be numbered. In 1967 New York City began testing new diesel buses with experimental mufflers, as well as experimental gas-turbine buses. In the same year, the Department of Housing and Urban Development asked the National Academy of Sciences to work with manufacturers to develop a quiet non-polluting bus; and the President directed that Federal research on diesel pollution be speeded up. The 1970-model-year national emission standards for diesel powered trucks and buses will reduce their smoke emissions.

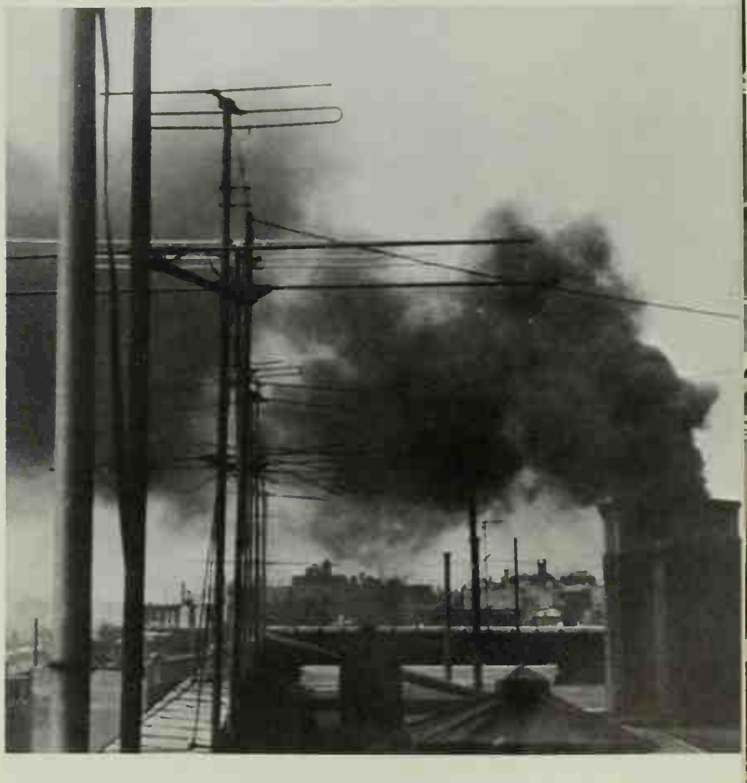
Federal Installations: In 1966 the President directed each Federal agency to control air pollution at its installations and to submit plans for doing this. These schedules were submitted in 1967 and Congress provided funds for the first steps. Federal installations must meet local or State standards, or standards set by the Secretary of Health, Education, and Welfare—whichever are more stringent. Progress is to be reported each year, beginning in July 1968. The pace of abatement will depend in large part on the level of annual appropriations by the Congress.

Air Quality Criteria and Research: In 1967 the Secretary of Health, Education, and Welfare issued the first national air quality criteria. These covered sulfur oxides, a major pollutant released mainly by burning coal and fuel oil. Criteria for several other important classes of pollutants are scheduled to be issued during 1968, and the criteria for sulfur oxides, in compliance with a provision of the Air Quality Act, will be reissued. An accelerated program of research into the causes and effects of air pollution, and techniques for controlling it, is being coordinated by the National Center for Air Pollution Control. Under its guidance, the resources of the Departments of Agriculture, Commerce, the Interior, and Health, Education, and Welfare, as well as other governmental agencies and the private sector of the economy, are being brought to bear on the problems.

State and Local Action: During the last three years there has been an unprecedented expansion of air pollution control activities by State and local governments. In 1965 only 20 States had air pollution control agencies; by the end of 1967 there were 45. While most have not yet adopted air quality or emission standards, 14 have begun to do so. At the local level, nearly 100 programs are operating and another 40 are being developed. New York City, for example, adopted a strong local control ordinance in 1967. However, almost half of the Nation's urban population still is not served by any kind of air control program. On a per capita basis, annual spending for local control amounts to about 15 cents; the Public Health Service considers at least 40 cents per capita necessary for an effective local effort.

Although the Public Health Service lists some 75 interstate areas with significant air pollution problems, as yet there is not a single effective interstate air pollution control program in the Nation. Several groups of States—Indiana and Illinois; West Virginia and Ohio; and the Mid-Atlantic States of New York, New Jersey, and Connecticut—have presented interstate air pollution control compacts to Congress for approval. Although these three documents have certain limitations, they represent the beginning of an expression of consciousness on the part of the States that many air pollution problems require joint action for their solution.

The Air Quality Act: Against this background, the President proposed and the Congress enacted the Air Quality Act of 1967. It is the beginning of a systematic effort to enhance the quality of the Nation's air resources on a region-by-region basis. This effort to clean up the air hinges on designation of regions where two or more communities share a common air pollution problem, and on enforcement of air quality standards set for these regions. The Secretary of Health, Education, and Welfare will designate air quality control regions, and will develop criteria for specific pollutants and information on cost and effectiveness of techniques for preventing and controlling them. It will then be the responsibility of the State or States involved to set ambient air



Smoke pours into the air from an apartment house boiler plant chimney.

Sunlight accentuates the presence of smog.

quality standards for each region and to establish plans for implementing these standards. If the Secretary of Health, Education, and Welfare finds that a region's standards and plans for putting controls into effect are consistent with purposes of the Act, the standards and plans will take effect. However, if a State fails to establish standards, or if the Secretary finds them inconsistent with the Act, he can set appropriate standards. State and local governments do not, of course, have to wait for Federal action to clean up the air their citizens must breathe.

Despite the gains made since the passage of the Clean Air Act, air pollution continues to worsen, particularly in metropolitan areas. Remedial programs need to extend not only to the types of air pollution that are harmful to health but also to those that have offensive odors and otherwise lower the quality of the environment.

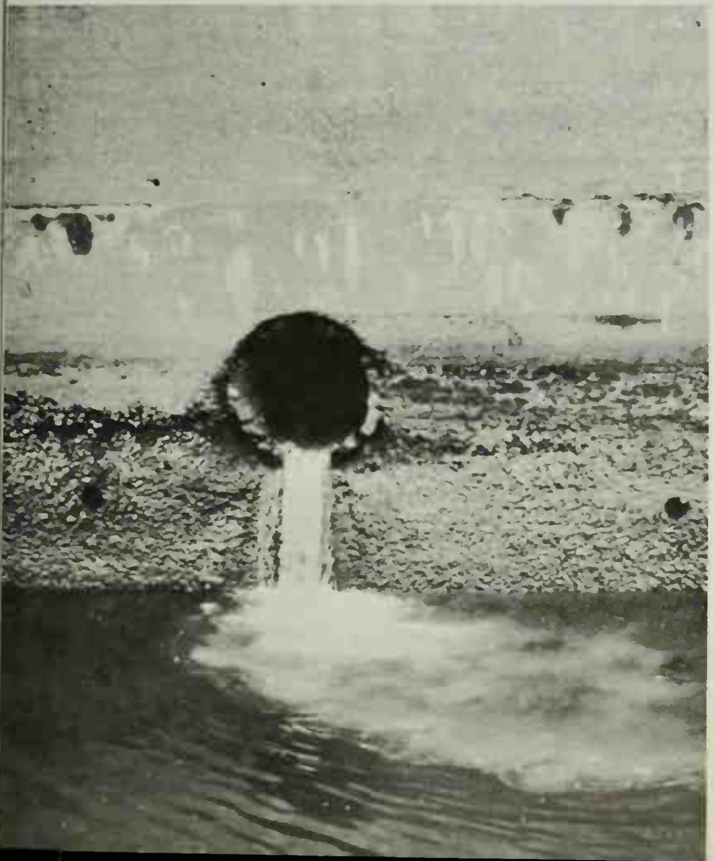
The Council recommends that the States, in cooperation with local governments, promptly establish effective regional air quality enhancement programs in accordance with the Air Quality Act of 1967.

The Council proposes that all Federal and federally assisted air pollution control programs include as basic objectives enhancement of the quality of life and provision of esthetic as well as health benefits.

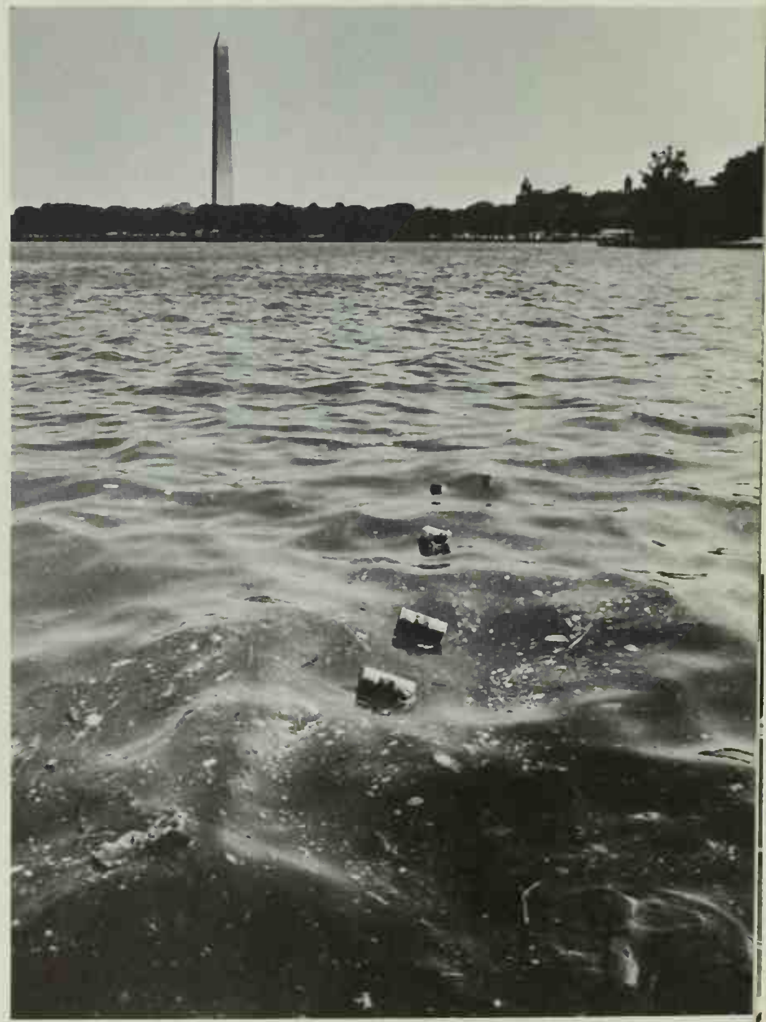
WATER POLLUTION

Clean water is beautiful to look at and delightful to walk beside and play in. A fountain in a city, a brook in a suburb, a spring in a wilderness all enhance their surroundings. But America's growing population and industry are dumping increasing torrents of wastes into the streams, lakes, and bays that once were clean and clear.

The problem is particularly acute in the major rivers that flow through the hearts of metropolitan areas. Waterborne wastes destroy beauty and make water-related recreation undesirable or impossible. The Potomac, the Hudson, and the Mississippi illustrate the problem. The Potomac's most serious pollution is in precisely the reach of the river with greatest potential for enjoyment by the 2½ million residents of the Washington, D.C., Metropolitan area. As the Potomac slowly flows through the Nation's Capital, its load of silt, filth, and acid from farms, mills, and mines blends with discharge from overloaded sewers to nourish an algae bloom and a summer stink that rises from the river for miles below the metropolis. The Hudson, from Albany to Manhattan, is an open sewer. Scavenger eels, one of the few animals that can live in waters loaded each day with 200 million gallons of raw sewage and the effluent of dozens of factories, have been known to attack sanitary engineers taking water samples. The Mississippi, at St. Louis, is so polluted that test fish placed in a sample of river water diluted with 10 parts of clean water die in minutes.



Small sources of chemical, industrial and home wastes can contribute to dangerous accumulations of effluent in waterways across the Nation.

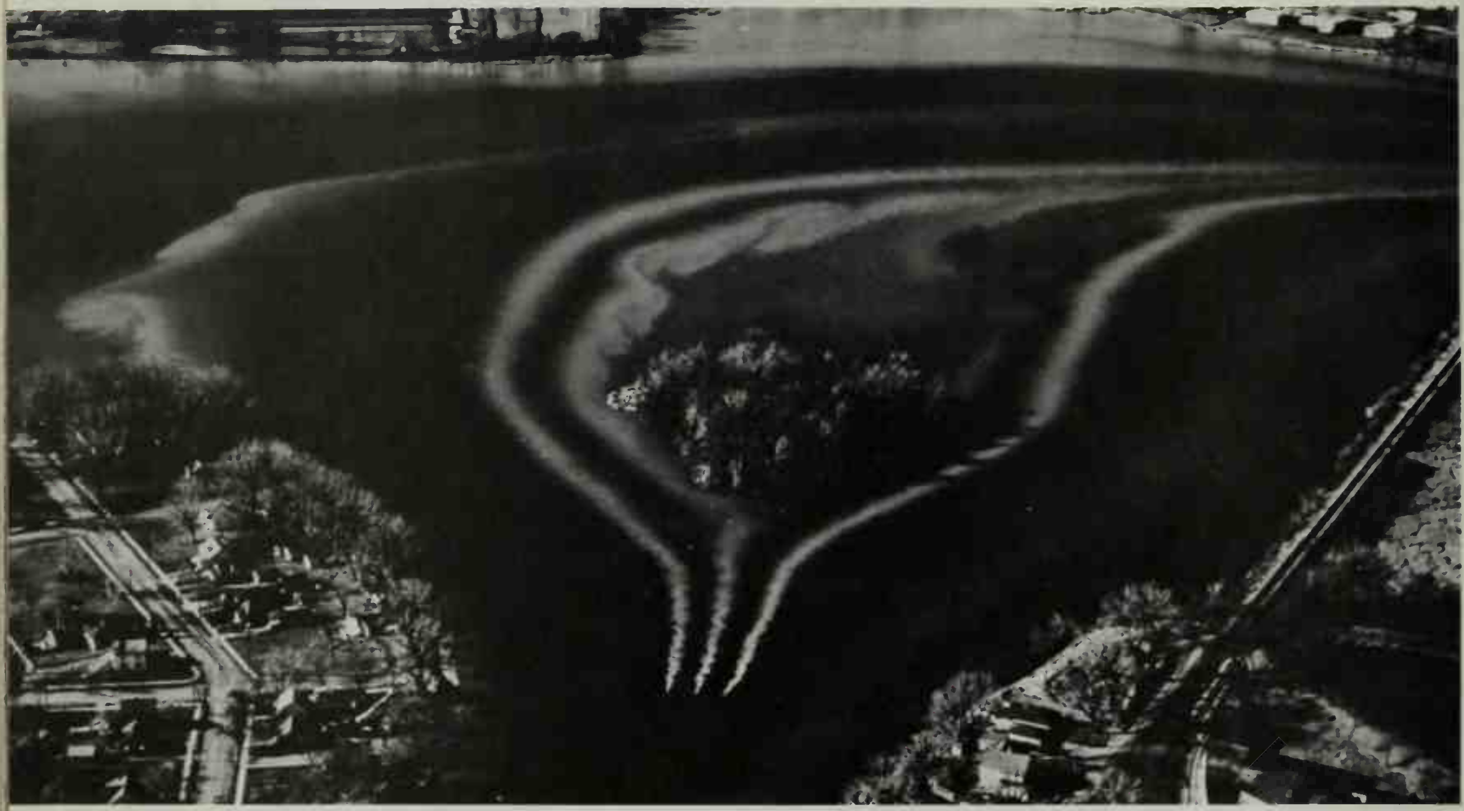


Water carries unnecessary burdens, diminishing not only its beauty but its usefulness.

In the future an expanding population will require more industry and agriculture. Each will produce more waste and at the same time require more clean water. In addition to the problem of coping with the increasing volumes involved, cleaning up water is becoming more complicated.

Today's wastes from homes, industry, and agriculture include new and complex chemical compounds which are more difficult to identify and treat; detergents are only one example. The rapid pace of urbanization

To abate pollution, a plant has run its waste lines into the stronger current midstream, but the flow is not strong enough to dilute the effluent effectively.



at suburban fringes results in siltation of water caused by erosion from lands stripped of vegetative cover. Runoff from city streets carries increasing volumes of wastes that are difficult to handle in treatment plants. Following heavy rain or snow, municipal sewer systems that carry combined storm water and sewage deliver substantial amounts of many communities' sewage raw to the receiving stream, lake, bay, or ocean. Coastal oil pollution, such as from the tragic spill from the tanker Torrey Canyon which blighted the coast of England in 1967, is a newly recognized hazard. (See page 169.)

Thermal pollution, caused by discharge of water at high temperatures from powerplants, also is cause for increasing concern as the number of nuclear powerplants along ocean and river shorelines increase.

Electric power generation has doubled every 10 years since 1945. The rate of increase continues to jump so that some analysts estimate that the doubling time for increase in demands may now be as short as five years. More moderate estimates give 10 years to double the power demands. Either are staggering increases.

About 70 percent of the industrial thermal pollution load in the United States today is caused by the steam electric power industry. Powerplants are now discharging into United States waterways 50 trillion gallons of heated water a year, in some cases with devastating effects on the environment and aquatic life.

By 1980, the power industry will use one-fifth of the total fresh water runoff of the United States for cooling and is predicted to spew forth 100 trillion gallons of heated discharge.

The Congress is considering proposals to assure that the Atomic Energy Commission exercises regulatory authority over thermal pollution aspects of nuclear powerplants in granting or denying operating licenses and construction permits. There is a need for cooperative Federal-State regulation of thermal pollution.

What Should Be Done: Keeping water clean and eliminating pollution at the source are the most effective and least expensive ways of assuring adequate water supplies of the quality necessary to meet both instream and withdrawal uses. State and local governments and industry need to step up the present rate of construction of waste treatment plants. Water quality standards, aimed at enhancing water quality for all uses, including esthetic and recreational purposes, can best be made effective through a Federal-interstate monitoring system and strict enforcement. Research, development, and demonstration of improved treatment technology will have to be intensified.

Overall, intergovernmental river-basin and regional approaches will have to be pursued. There is particular need for cooperative efforts in metropolitan regions. Consolidated collection and treatment of municipal liquid wastes by several communities can often permit more effective treatment at lower unit cost than is possible with scattered separate plants. Similarly, combined municipal-industrial treatment systems are frequently more economical than separate plants. And—although little has yet been done to demonstrate it—joint treatment operations by a number of industries offer promise.

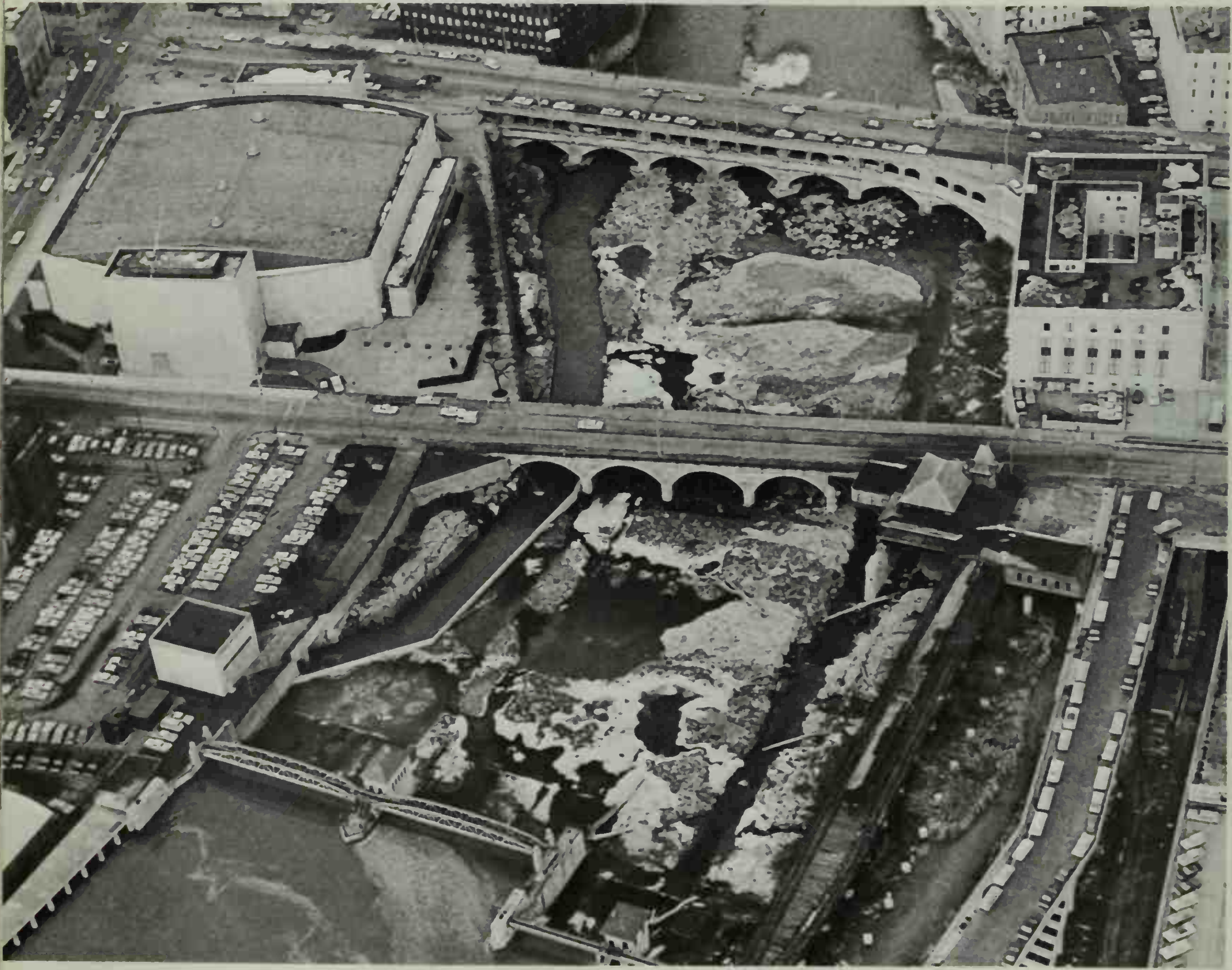
What Has Been Done: Significant steps have been taken during the last three years:

- In 1965, the Water Quality Act authorized a concerted nationwide attack on water pollution on a river basin basis. This law requires establishment and enforcement of water quality standards on interstate and coastal waters. In 1967, all States proposed standards and programs to achieve them and by the end of that year 11 had been approved by the Secretary of the Interior. The standards take into account esthetic and recreational needs, as well as the other uses of water and include schedules for construction of treatment facilities and other abatement actions.

- In 1966 a Presidential Executive Order directed officials responsible for 20,000 Federal installations, from post office to parks, to stop any water pollution their installations were causing. In 1967 five-year plans for doing this were submitted and the President asked Congress for funds to begin the cleanup. Success in carrying out the plans will depend upon the level of Congressional appropriations. All proposed new Federal construction projects submitted to Congress now include plans for adequate treatment to control water pollution. The Executive Order to clean up Federal pollution also provides a basis for encouraging pollution abatement by industrial firms and others who contract with, receive grants from, or borrow from the Federal Government. This avenue for encouraging pollution abatement warrants attention at all levels of government.

- In 1966 the Clean Water Restoration Act authorized a total of \$3½ billion in Federal matching grants to local governments for treatment plant construction between 1967 and 1971. The Act removed earlier restrictions against grants to larger metropolitan areas. The Federal appropriation for the 12 months ending July 1, 1968, is \$203 million for local treatment plant construction grants. However, the backlog of applications for these grants already exceeds the \$450 million authorized by Congress for this same period. The Department of Commerce estimates that \$37.5 billion should be spent on construction of water treatment facilities during the 14-year period, 1967–1980; this is the estimated amount of public and industry funds required to remedy present inadequacies, to make up for obsolescence, and to meet increased requirements of a growing population. There is an urgent need to fund the Federal grant-in-aid program for construction of sewage treatment plants to the full amount authorized by the Congress as soon as the budgetary situation permits.

Low flow can make for ugly and often odorous conditions.



- In 1967 the Federal Water Pollution Control Administration started a detailed study of the cost of cleaning up the Nation's waters, together with an industrial incentive study. These will be completed in 1968. A program to clean up the Nation's estuaries is being developed by the agency for submission to the Congress in 1969, and reports on manpower and training needs and on water-craft pollution were completed in 1967.
- Research is being accelerated. Emphasis is being placed on the immensely difficult problem of combined sewer discharges—those carrying both municipal sewage and stormwater runoff—non-sewer urban runoffs, and joint municipal-industrial wastes. Industrial wastes also are receiving research priority; these include

serious industrial pollutants produced in manufacturing metal products, chemicals, power, petroleum and coal products. Other research targets are acid-mine drainage and agricultural pollutants—including pesticides, fertilizers and animal wastes from feedlots. In 1966 Congress authorized direct Federal grants to industries for research on their pollution problems.

- Urban soil erosion is being controlled by some local governments. For example, in 1966 Montgomery County, Md., adopted grading and sediment controls in cooperation with homebuilders, highway agencies, and the local soil conservation district. Much more needs to be done along this line by local government. At a 1967 conference on Soil, Water, and Suburbia sponsored by the Departments of Agriculture and Housing and Urban Development, land developers and urban planners were urged to apply sound soil and water conservation principles in converting open land to urban use.

- The Tennessee Valley Authority will not permit boats to be moored to land which it owns or manages unless they meet State water pollution control regulations.

- Increasingly, States and local governments are taking more effective action to control water pollution. In 1965, for example, New York approved by 4 to 1 a $1 billion clean waters bond issue. As a result, the State has set a deadline of 1972 for control of major pollution in the Hudson. In 1966 Wisconsin enacted one of the strongest State control laws; it authorized a $300 million cleanup program. Total State and municipal investment in water pollution control is now estimated at about $700 million a year.

Despite the fact that for the first time a concerted nationwide attack on water pollution is underway and despite improvement in some localities, the Nation as a whole has not yet reduced the total level of water pollution. As is the case with air pollution, the overall problem continues to get worse every day.

The Council recommends that the States establish intrastate water quality standards at least comparable to those established on interstate and coastal waters under the Water Quality Act of 1965.

The Council proposes that Federal agencies responsible for land management, development, financial assistance, or loan guarantee programs which disturb the soil, utilize erosion control techniques, standards and requirements such as those developed by the Federal Water Pollution Control Administration and the Soil Conservation Service. It further proposes that recipients of Federal financial assistance for such projects be encouraged and in special cases required to meet erosion control standards comparable to those applied to direct Federal projects.

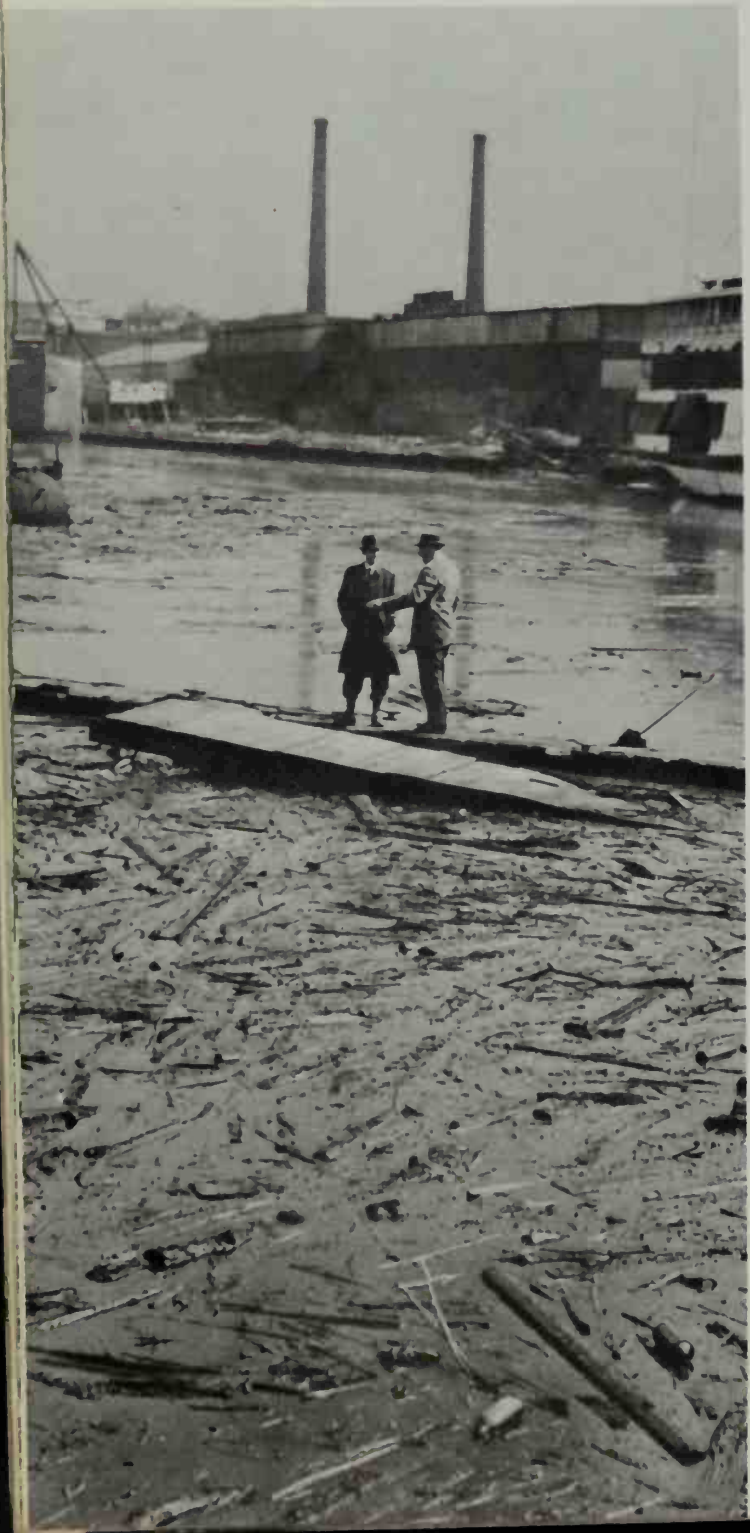
The Council proposes the enhancement and protection of esthetic and recreational values of waters and adjacent shoreline as one of the primary functions of Federal, federally licensed, and federally assisted water pollution control, water resource development, and power generation programs and projects.

SOLID WASTE

Into American homes flows a steady stream of groceries and gadgets. Out of them flow cans and cartons, bottles and broken toys and bric-a-brac. This solid waste includes 48 billion cans (250 per person), 26 billion bottles and jars (135 per person), and 65 billion metal and plastic caps (338 per person) a year. These and demolished buildings, worn-out appliances, and the other residues of affluence total more than 2,000 pounds per person per year—more than 5 pounds a day for each American.

Not only is solid waste increasing in volume, its characteristics are changing. Accumulation of nonreusable containers is a difficult part of the problem. The continuing trends toward nonreturnable bottles and new types of disposable paper products add to the problem.

Solid forms of pollution are navigation hazards and can damage waterside structures.



Tin cans will rust and disintegrate in time, but aluminum and glass are more permanent and some containers made of new kinds of plastic are possibly even more durable. Many are not consumed completely even by incineration; their litter on the landscape can be expected to remain indefinitely. The development of naturally disintegrating containers offers promise and should be encouraged.

Nationwide, collection and disposal of garbage and other solid waste cost an estimated $3 billion in 1967, and this was accomplished by methods little improved over those of 25 years ago. Although salvage industries do $5 to $7 billion worth of business a year, they use only a small part of the Nation's total waste. The great bulk, which is neither salvaged nor recycled for reuse, has a vast potential for littering the landscape. Two other results of improper waste management are air pollution from burning of refuse, and water pollution by seepage from dumps. Population growth, increasing amounts of refuse per person, shrinking numbers of acceptable disposal sites, and archaic technology combine to make solid waste management an urgent environmental problem in many metropolitan areas.

Yesterday's solution was to dump "outside the city limits," on unused land at the edge of town. But in today's metropolis, the merging of the suburbs leaves little room for dumps; one result is that too often they are located where they destroy out-of-the-way areas of natural beauty, such as stream valleys and marshes.

Dumping vs. Recycling: Today's conservation principles call for recycling waste for reuse wherever possible, rather than burning it or dumping.

Composting, which involves decomposition of organic materials to make fertilizers or soil conditioners, is one promising approach. Some inorganic materials also can be reused; even junk glass can be melted down to small beads and used as a component of soil conditioners.

Under properly controlled conditions, use of solid waste as landfill material in appropriate places, such as

Properly controlled sanitary landfill operations keep layers of waste covered with layers of soil.

A power company warehouseman sorts scrap to be reclaimed.

abandoned quarries or other excavated areas can be considered a method of conversion or reuse. Sometimes such filled areas can be planted or developed for useful purposes. Planning of landfills should be consistent with comprehensive planning for the area involved, and avoid areas of natural beauty, parks and other recreation lands, fish and wildlife areas, and historic sites. Landfill sites should avoid soils which might allow seepage which would pollute underground water or otherwise cause deterioration of watersheds. Landfill programs should include restoration of suitable plant cover and long-term plans for future use of the sites involved.

Collection and recycling of aluminum beverage cans is feasible in some circumstances. (See discussion of litter collection, Part I, page 72. The junked automobile, a type of solid waste that can be particularly detrimental to natural beauty, is discussed at page 214.)

Collection System Management: Solid waste collection technology and management need to be improved. Too many municipal trash collection systems are incomplete.

Three million tons of refuse are dumped into San Francisco Bay each year.

Because of limitations on the types of trash or garbage which many public services will collect, homeowners often must individually dispose as best they can of other waste products. This can result in air pollution from the burning of leaves, for example, or the dumping of household trash in inappropriate places. Public waste collection services should pick up all trash and garbage.

In many metropolitan areas, regional trash and garbage collection systems are needed to replace small city or county systems. For example, in the nine-county San Francisco Bay region of more than 4 million persons, 3 million tons of refuse a year are dumped at 77 sites by 83 separate collecting agencies. Like many metropolitan areas, the Bay Area is running out of suitable disposal sites. Of the existing sites, two-thirds are along the San Francisco Bay shoreline. In 1967, the Association of Bay Area Governments asked the California Legislature for authority to operate a regionwide solid waste disposal program. The request was denied, pending a two-year study.

New York City in 1967 experienced a kind of chain reaction that illustrates the relationships between the three main types of environmental pollution. A new city air pollution ordinance was about to go into effect. It required the owners of apartment houses to install control devices in their 4,000 trash-burning incinerators. Many of them balked. Instead, they said, they would take advantage of an alternative disposal method available to them: Despite the additional noise it would cause, they would put the trash in garbage cans for the city's sanitation trucks to haul away. City sanitation officials promptly objected; they didn't have enough trucks or employees to handle the additional trash. Besides, they said, the city was running out of disposal sites. This additional volume would result in increased dumping on the marshy edges of Pelham Bay, an estuary along one of the city's outlying parks.

It was the turn of the city park commissioner and conservationists to object. They pointed out that the estuary was a nursery and sanctuary for wildlife and

fish, and one of the last reaches of unspoiled shoreline in the region. Turning it into a dump would not only destroy this irreplaceable resource, but would pollute water over a wide area, they said. Mayor John V. Lindsay told the sanitation department to find another site for a dump. As of December 1967, it hadn't been found; city garbage trucks were continuing to dump 2,000 tons of refuse a day at a previously used landfill site adjoining the bay.

In an attempt to head off such conflicts in the future, early in 1968 the city combined a number of separate functions in a new Environmental Protection Administration. The new "super-agency" brought together the departments of sewerage and water supply, as well as sanitation, air pollution control, and noise abatement.

Recent Progress: Solid waste management is a fast developing field:

- In 1965 Congress took the first step toward a national solid waste management program with enactment of the Solid Waste Disposal Act. It authorized a small program of research, training, and technical assistance, grants to States for planning of statewide programs, and grants to demonstrate improved techniques of collection and processing. Two programs have been set up under the Act. An Office of Solid Waste in the Bureau of Mines concentrates on problems of mineral-derived wastes, including junk autos. The Public Health Service's National Center for Urban and Industrial Health has established a Solid Wastes Program, concerned with all other solid wastes. Under the Act some 50 demonstration projects had received grant support amounting to $7 million by the end of 1967. In addition, 32 States had begun developing plans to cope with solid waste problems, aided by Federal grants totaling $1.4 million. The Public Health Service had begun a survey of disposal needs and practices in 5,000 cities and all metropolitan areas; this will provide the first nationwide analysis of solid waste management problems and practices.
- In 1967, the Tennessee Valley Authority and the Public Health Service began operating a large-scale experimental composting plant in cooperation with Johnson City, Tenn. They are investigating the value of compost consisting of mixed refuse and sewage sludge. Tests are being made to determine the product's usefulness as a soil conditioner for strip-mined and highway-cut sites, and its marketability for farm use. St. Petersburg, Fla., and Houston, Tex., also are operating municipal composting plants. These process from 100 to 350 tons of garbage and refuse a day into a soil conditioner.

Despite this progress, most cities of more than 2,500 population do not have sanitary solid waste management systems. In many large metropolitan areas, suitable landfill areas are nearly exhausted, dumps threaten scenic parts of the landscape more valuable for public enjoyment, and fires in open dumps still darken the skies. The trash and garbage produced by urban areas is expected to triple by 1980. Many metropolitan areas are approaching a solid waste crisis, but still have opportunity to avert it.

Although the Nation needs more knowledge of better ways to collect, process, and reuse solid waste, much knowledge is already available that should be put to work on a broad basis through local action. The Federal Government should stimulate this.

The Council recommends that the Federal Government be authorized to provide grant-in-aid assistance for establishment of regional solid waste management systems which are integrated with regional liquid waste management and air quality control systems and land-use planning. These systems should emphasize reuse of waste materials as a primary goal, and any landfills should be limited to appropriate sites and not encroach upon recreation lands or other areas of natural beauty.

There is a need for coordination of abatement efforts for all forms of pollution, including solid waste disposal.

The Council proposes that as soon as criteria are developed all Federal and federally assisted pollution abatement efforts should be operated as integral parts of regional waste management plans and programs encompassing air and water pollution control and solid waste management, and coordinated with comprehensive planning.

URBAN SPRAWL

The impact of America's population boom is felt most heavily in the metropolitan suburbs, which are growing seven times as fast as the central cities. By the mid-1960's a majority of Americans living in metropolitan areas were suburbanites; in 1966 the Bureau of the Census estimated that 60 million Americans lived in metropolitan-area central cities and 66 million in their suburbs.

Typically, this rapid growth is scattered and piecemeal as the fringes of one suburb coalesce with those of the next. The resultant haphazard, leapfrogging growth of metropolis is a major threat to the quality of the American environment.

The New York Metropolitan Area's Regional Plan Association has labeled the result "Spread City." A land developer and mortgage banker has described the process to a Congressional committee:

> A farm is sold and begins raising houses instead of potatoes—then another farm. Forests are cut, valleys are filled, streams are buried in storm sewers.
>
> Traffic grows, roads are widened. Service stations . . . hamburger stands pockmark the highway. Traffic strangles. An expressway is cut through and brings cloverleafs which bring shopping centers. Relentlessly, the bits and pieces of a city are splattered across the landscape.
>
> By this irrational process, non-communities are born—formless, without order, beauty or reason—with no visible respect for people or the land. Thousands of small, separate decisions—made with little or no relationship to one another nor to their composite impact—produce a major decision about the future of our cities and our civilization, a decision we have come to label "sprawl."

Sprawl leaves few sizable open spaces in its wake. The distinctive land forms, scenic vistas, and the other happenings of nature that give individuality to an area are erased. The resulting monotonous, homogenized, helter-skelter patchwork surrounds nearly every metropolitan area in the country.

Sprawl stretches out the distances people must travel to work, to shop, to school, to play; adjacent areas are

too often unrelated. Sprawl wastes land; a projection by the New Jersey State planning agency suggests that by 2000 one-third of the State's land will be devoted to roads, parking lots, and other transportation facilities. In the confusing, unrelated, amorphous agglomerations that are typical of sprawl it is often difficult for many who live there to feel a sense of community, or a means of participation.

Farm areas often feel the onslaught well ahead of sprawl's physical encroachments. Even before it is "good business" to install pieces of towns on rural acreage, speculation, rising land values and increasing taxes frequently make it unprofitable to farm. The result is a metropolitan area fringe of weed-infested fields and ragged and spotty development—a rural-to-urban transition belt, often 20 miles wide, that is neither town nor country. This is the principal way America's future cities are being created. At every step of the process of subdividing and developing new land for housing, public agencies are involved. Yet neither the individual public agencies nor the individual builders can determine the aggregate result; this country-to-town conversion process is a problem of public responsibility that can be solved only by broad public powers providing both regulation and incentives.

This calls for comprehensive regional planning backed by strong zoning and other land controls, tax incentives to private landowners, which help direct patterns of land use, and advance acquisition of open space and other public land. Key planning decisions include those locating transportation arteries and water and sewer lines.

A promising new approach to these problems is illustrated by California's Local Agency Formation Commissions. These commissions, required by law in each county, consist of city and county officials and a citizen member. They have veto power over both formation and expansion of cities and of special-purpose districts, including water and sewer districts. In 1966, the State's Intergovernmental Council on Urban Growth reported that many of these commissions had worked out improved procedures for annexation and extension of urban

The large amount of land consumed by transportation routes and parking space contributes to urban sprawl.

services into urbanizing areas, had cut proliferation of special districts by half, and generally were succeeding in discouraging urban sprawl and encouraging more orderly urban growth.

NEW CONCEPTS OF ZONING

Zoning, a traditional regulatory tool used to make land use plans effective, can limit development to specified uses, separate commercial areas from residential areas, and set limits on the number of housing units and the size of residential lots in an area. But residential zoning can be a two-edged sword; in some cases it actually encourages sprawl; in some instances residential zoning which requires large lots can simply extend a thinner spread of sprawl over an ever-widening area.

Cluster zoning and other planned-unit-development zoning take a different approach. (Part I, page 41.) These methods allow developers to group housing units and use the land that is saved for neighborhood open space. Cluster development can contribute to regional open space if the individual neighborhood open spaces are threaded into a connected system. The Federal Housing Administration encourages such planned-unit developments by providing technical assistance to builders. FHA-developed guidelines, including land use intensity standards, are being used as a basis for zoning regulations by a number of local governments.

Development of some of the new towns now being built across the country relies on the cluster principle, on a large scale. In Maryland's Howard County, for example, the builders of the new town of Columbia have reserved nearly 30 percent of its total of 14,000 acres as community open space. The county's new-community district zoning ordinance sets an overall

In Hawaii, a golf course provides an open space buffer between a through highway and a subdivision surrounded by lands still used for agriculture.

ceiling on population density, averaging 2½ dwelling units per acre in this case. The ordinance permits different densities in different portions of the town.

Some cities and counties have attempted to maintain their best farmlands as greenbelts by zoning them for agricultural use only. But pressures for zoning exceptions are often difficult for local officials to resist, particularly since developed land provides more local tax revenue than open land. The long-range advantages which one local jurisdiction realizes from strong, well-enforced zoning are watered down if its neighbors do not follow similar policies. There is need for much more effective and continuing application of zoning.

One proposed solution to this problem is metropolitan area-wide zoning based on an up-to-date comprehensive plan for the region as a whole. No major metropolitan area in the Nation yet has such a plan. Another approach calls for broad zoning by State governments, advocated partly on the assumption that State governments are likely to be less susceptible to pressure from local developers to weaken zoning restrictions than are local governments. In Hawaii, to discourage sprawl, destruction of the State's natural beauty and loss of prime agricultural lands to residential use, a State land use commission has zoned the State into four major land use classes: Urban, rural, agricultural, and conservation. In 1966 the Wisconsin Legislature broke new ground when it authorized State zoning of lands along the shores of all lakes and rivers if local governments do not do so. (See page 176.) Purposes of the Wisconsin law include preservation of natural beauty and ecological values.

Flood-plain zoning can effectively protect portions of the landscape as open space. (See page 156.) Along watercourses and in other areas subject to periodic flooding such regulations prohibit the kinds of development that would be seriously damaged by floods, while permitting limited outdoor recreational and agricultural development. This type of zoning not only makes economic sense, but can protect what often are the most scenic parts of a countryside—the shorelines of rivers and streams. In 1965, the California Legislature made local flood-plain zoning a necessary prerequisite for State sharing of certain flood control costs. In 1966, Wisconsin went further. The legislature passed a law similar to its new shoreline zoning law: If local governments fail to adopt effective flood-plain zoning by 1968, the State may do so.

Despite such innovations, zoning in most metropolitan regions remains a notoriously fragile tool for guiding growth. Zoning regulations themselves tend to be weak, exceptions are granted too frequently, and zoning by a multiplicity of local jurisdictions results in unrelated standards and patterns. When added together, individual city and county zoning regulations in a metropolitan region seldom provide a cohesive pattern. Furthermore, there is no reason to expect that local planning and zoning will be coordinated in the absence of regional governments and regionwide plans to provide guides for this purpose.

TAX INCENTIVES

Tax assessment practices also contribute to sprawl. Farmers and other landowners who would prefer to keep their lands open find that rising real estate taxes force them to sell to developers. Assessment of land for tax purposes normally is pegged to recent sales of nearby land; on the fringes of metropolitan areas such sales frequently are for subdivision development.

Some local and State governments are trying to encourage property owners to keep their land open by taxing them on the basis of present, rather than potential, use. In 1965, for example, the Hawaii Legislature authorized present-use tax rates on land which the owner agrees to keep in farming or other open space use for at least 10 years. The same year California enacted a similar measure, and in 1967 the Washington Legislature also authorized existing-use assessment of open land. It should be noted that in some States there have been abuses of this approach; landowners have been given open land preferential tax treatment without requiring payment of back taxes at normal rates when the land was developed soon thereafter.

There is need for more experimentation with broader use of tax deferral and other tax incentives to encourage preservation of privately-owned open land near urban areas. Federal agencies should assist State and local efforts in doing so by demonstration and research grants and in other appropriate ways.

ACQUISITION

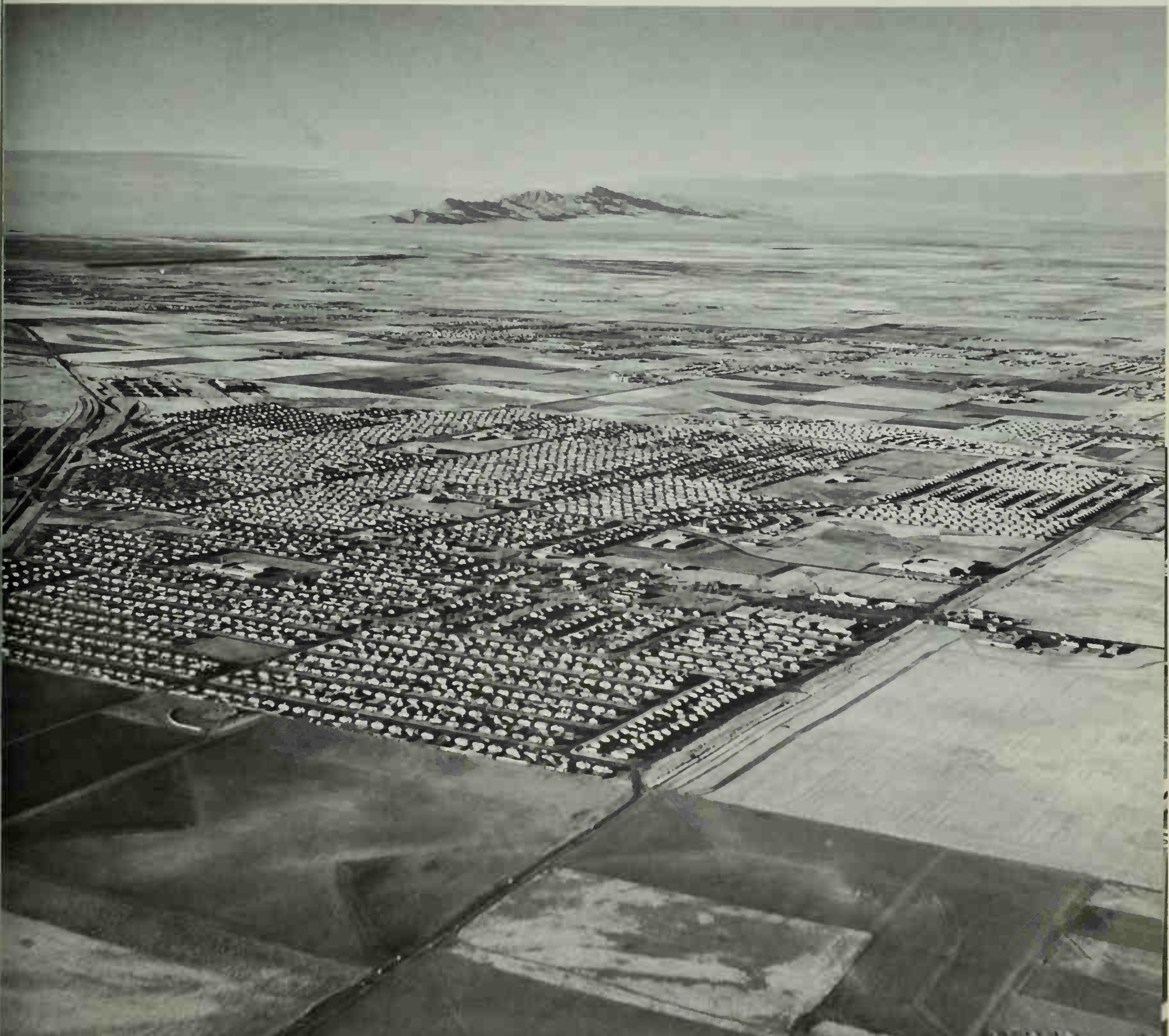
Despite potential benefits from imaginative zoning tools and tax incentives, even when applied on a regional basis, these measures alone cannot curb urban sprawl. The most effective way of preserving open space in the path of sprawl is purchase of the land or development rights by a public agency.

In the three-year period, 1965–67, more than 94,000 acres of urban open space were preserved by local and State governments with the help of more than $84 million in matching grant assistance for land acquisition under the Department of Housing and Urban Development's Open Space Land Program. In addition, at the beginning of 1968 the Open Space Program had on hand some 800 pending applications for grant requests totalling $162 million.

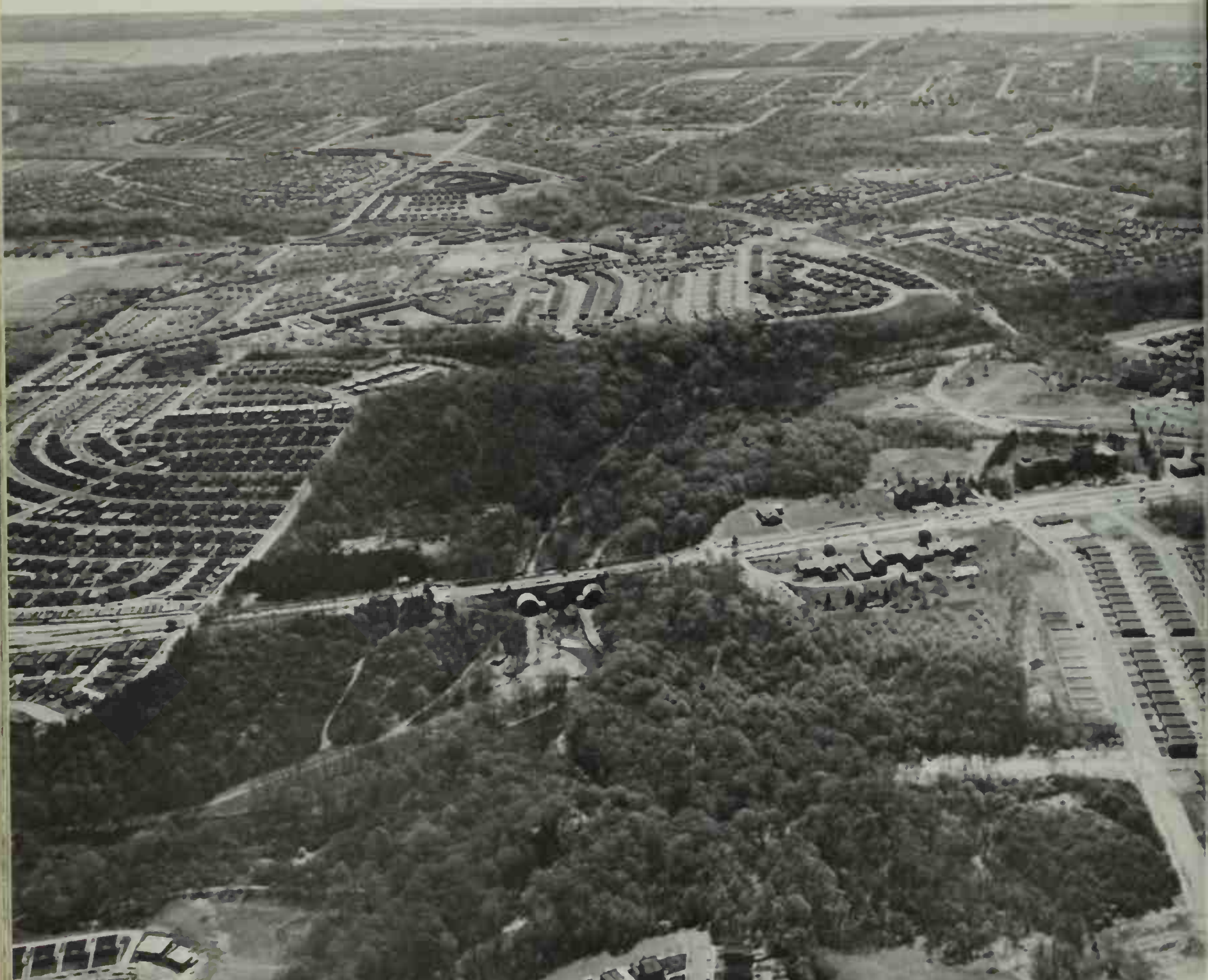
During the same three-year period the Land and Water Conservation Fund, administered by the Department of the Interior, helped State and local governments acquire 295,000 acres of land for outdoor recreation use, in both urban and rural areas. These grants totaled $51 million. At the beginning of 1968 the backlog of applications for acquisition grants from this Fund totaled $13.3 million for some 100 State and local projects.

Future needs for open space and recreation lands will continue to be great. Public agencies cannot buy full-title rights to all the land that is needed. But where public purchase is planned, acquisition should proceed

Suburban areas spread out across prime irrigated lands in Utah.



A strip along the river, long ago dedicated as a park, provides open space relief in a densely settled area.



as rapidly as possible. Accelerating land values are driving the cost of many needed lands, especially in metropolitan areas, out of reach of the public purse. A 1967 Bureau of Outdoor Recreation report, "Recreation Land Price Escalation," estimates that such lands generally are escalating in cost from 5 to 10 percent a year and that the more desirable sites, including many in and near metropolitan areas, are increasing at close to 10 percent a year. The report notes that such a rise means a doubling in cost every seven years.

The Council recommends that, in view of rapidly rising land costs and urban population increases, State and local governments expand open space and outdoor recreation systems in and adjacent to metropolitan areas while the opportunity exists. Acquisition of such lands generally should have priority over development of land already acquired. Equal attention should be given to acquisition of areas of outstanding natural beauty threatened with damage or obliteration, wherever located.

Federal agencies generally should apply these priorities to Federal outdoor recreation land acquisition and development programs. The same priorities should apply to Federal programs of financial assistance to State and local open space and outdoor recreation projects, except where approved State Outdoor Recreation Plans provide that higher priority be given to development than acquisition.

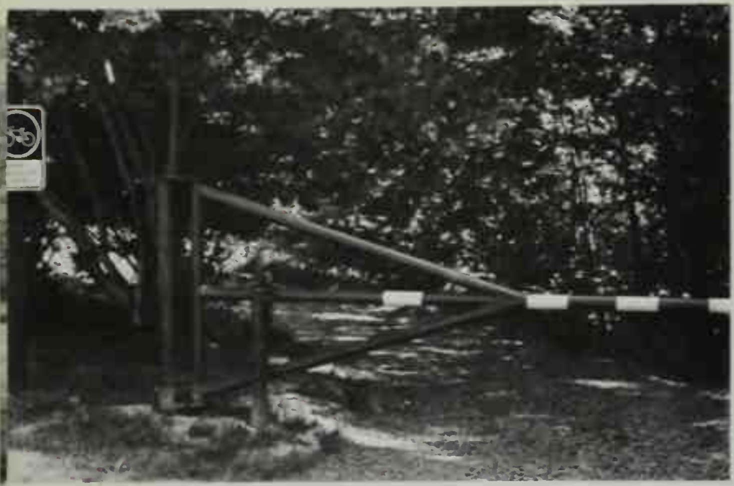
It is not necessary for the public to buy all the rights to open land in order to enjoy its benefits. It can buy only those rights which it actually needs—the right of access, for example, or the development rights needed to protect a scenic vista. Many States are acquiring easements across private land for such purposes as providing stream access for fishermen. Fewer are acquiring scenic easements. Wisconsin, which has pioneered use of scenic easements along the Great River Road, is one notable exception.

These approaches offer greater potential than has yet been realized. One of the problems is that although the techniques are known, few public officials or landowners have had experience using them; demonstration projects and full reporting of case histories are needed. Most recreation and open space land acquisition programs are unable to obtain enough money for full-title acquisition of needed areas. There also is a need for experimentation in the use of long-term options in this field.

The Council proposes that Federal agencies consider and use easements and other techniques to secure the public benefits of open space at less than the cost of acquiring full title to such areas wherever these techniques appear to be feasible, and that Federal agencies encourage and assist local and State experimentation in their use and in use of options and other methods for reserving lands needed for future public purposes.

Outdoor recreation and other open space lands provide special benefits when they follow stream system networks or other natural corridors and link up with similar lands in adjoining neighborhoods and communities. Such connected open areas provide opportunities for hiking, riding, or cycling trails. In 1966 the Secretary of the Interior allocated $367,000 from the Land and Water Conservation Fund to help local governments acquire segments of trail systems in a dozen metropolitan areas. And in 1967, the Administration proposed a comprehensive nationwide trail development program, including Federal encouragement of metropolitan area trail systems. (See page 194.) Federal agencies can take a more active role under existing authorities to assist development of metropolitan area trail systems. They offer a singular opportunity to provide nearby recreation and natural beauty benefits to many families who may seldom use most federally developed or assisted recreational facilities.

Trails for bicycling, especially in urban areas, can follow stream beds as here in Arlington, Virginia, or transportation and utility rights of way and canal systems, as well as little used streets and roads.



CHICAGO'S PRAIRIE PATH

Cooperation between government and citizens can capitalize on existing open space possibilities. Imaginative planning for recreational use of an abandoned railway right-of-way in the Chicago area supplies one example. For 50 years the Chicago, Aurora and Elgin Railroad hauled commuters to and from Chicago's western suburbs. In 1957 the line stopped running, leaving miles of idle track and right-of-way in one of the Nation's most congested areas. Local citizens formed an Illinois Prairie Path Committee, and urged public acquisition of the property. After years of title searching, land appraisals, and conferences wtih hundreds of individuals, public utilities, and cities along the line, Du Page County acquired 27 miles of the right-of-way. Today, the old roadbed is a riding, hiking, and cycling trail serving the people of the Greater Chicago Area. Leaders of the Illinois Prairie Path, organized as a nonprofit corporation, work with utility companies, the county, local communities and citizen groups in promoting activities along the path. Sections of the trail are assigned to individuals, families, Scout groups, homeowner associations, schools, garden clubs, and conservation groups who maintain and develop it as a regional resource.

Rapidly escalating land prices affect not only recreation lands but other potential public lands as well. Advance land acquisition is one answer. In 1965 Congress authorized a limited program to help local governments buy the land they will need for future public facilities; the Department of Housing and Urban Development was authorized to pay interest charges on loans borrowed by local governments to buy land in advance of public use. This program, however, contains so many restrictions that only $200,000 of an authorized $5 million had been used by the end of 1967. The law now requires the local agency to develop the land within five years, bans any use of any other type of Federal land acquisition aid for the land, and does not permit States to participate. There would be greater use of this program, with resultant savings to local and State taxpayers, if these restrictions were removed.

In 1967 the Baltimore, Md., Regional Planning Council suggested a more direct approach. A regional "land bank" agency would be created to acquire lands in advance of development needs. In turn, public agencies could buy land from the land bank. The cost to them would be the land bank's acquisition cost plus administrative and interest costs. The bank would operate on a revolving-fund basis. Federal or State funds would be used initially to help establish the bank and would be repaid. The land bank would reserve land by buying full-fee ownership, development rights, and long-term options.

This revolving-fund land bank approach offers the possibility of assuring more adequate open space as well as lands for other public needs in the path of urban sprawl. It warrants testing in several metropolitan areas.

The Council will encourage a national study to determine the feasibility of using a revolving fund from which loans could be made to non-Federal public agencies to acquire land for future programs to improve the quality of the environment.

STEPS TOWARD SOLUTIONS

THE NEW TOWNS

Large-scale real estate development organizations are now beginning to create complete new communities in the United States.

Unlike America's older cities, which are sprawling in all directions, the new towns are planned in advance and their population objectives are set before the first road is paved. This development may prove to be the most significant answer thus far to the irrational and often ugly disorder of unplanned urbanization. The new communities also may point the way to new methods of diverting growth away from today's overcrowded metropolitan regions.

Throughout the country some 80 to 100 new towns are in various stages of planning and development. In theory each will be a "complete" community that includes in reasonable balance all essential community functions: industrial or other primary employment centers, shopping and other commercial facilities, residential areas, and a range of recreational, cultural, health, and educational facilities.

Most of the new towns now being built are in or near metropolitan areas. But whether they are satellites to existing central cities, or free-standing communities essentially removed from them, most new towns are providing far more open space than is found in existing towns. Large acreages devoted to parks, golf courses, lakes, and other open space uses are planned. Developers of many new towns expect to retain more than 25 percent of their acreage as open space; most American cities do not have half that much. Some of the open space is made possible by economizing on other land uses, such as streets. In the Baltimore metropolitan region, for example, planners estimate that a continuing sprawl pattern of growth will require 4,500 miles of new streets by 1985, while new town development for the same population would need only 2,500 miles, with both greater safety for children and pedestrians and a more natural environment.

Although practice in many cases still is falling far short of potential, new towns clearly promise a new and better environment for urban life.

State governments are beginning to realize the importance of this new way of relating the growth of large cities to preservation of natural environments. The States of California and New York, for example, are beginning to consider such concepts in their comprehensive planning. Along New Jersey's Hackensack River, one of the few large remaining open areas in the New York metropolitan region, New Jersey is proposing a new town that promises to become a distinctive addition to the State's urban structure.

Townhouses cluster at water's edge close by shopping center in relatively high density residence area of the new town of Reston, in Virginia.

Shops, townhouses and a highrise apartment tower border one end of Lake Anne in Reston, Virginia.

New towns offer significant possibilities for coping with the additional 135 million urban Americans expected by the end of the century. However, most of the new towns which are already being built have serious limitations. In few cases are they conceived in terms of solving critical problems of metropolitan growth. Many new towns do not fully reflect public needs and objectives. Most are not economically balanced communities; they provide housing only for upper and middle income classes.

In addition, looking at the country as a whole, the new towns are so few and, on the average, so small that without some major changes they cannot be expected to significantly alter the sprawling patterns of metropolitan growth. Here the role of the Federal Government may be critical. Obsolete local land use and subdivision regulations, as well as lack of imagination or capital by developers and lenders, make it difficult to break new paths. The most critical constraint on a new-town developer is the fact that he must make large investments and meet high carrying costs for years until the first house is sold. Regional plans that accommodate new towns, financial assistance to developers, and stronger incentives for innovation and excellence will be needed if the powerful potential of new towns to help realize national environmental goals is to be realized.

Some advocates of new towns look beyond satellite communities and contemplate the creation of entire new cities, with populations of from 250,000 to 1,000,000 or more, located far from existing urban areas, perhaps—for example—on federally owned public land in the Western States. At this scale many community services and amenities are economically feasible which are denied to smaller new towns. Such concepts may offer a useful way to approach the future of Appalachia.

New methods of mass transportation, radical new housing designs, a wide range of cultural activities, and educational systems that include colleges or universities could be incorporated in the design of such new cities.

Recent Developments and Proposals: There have been some Federal efforts to encourage new communities.

- In 1965, the President asked Congress to authorize Federal loans to local or State agencies for land acquisition for planned community development. The public agencies would have been permitted to sell to private developers portions of the land not retained for public facilities. This request was not approved.

- The Demonstration Cities and Metropolitan Development Act of 1966 permits the Federal Housing Administration to insure loans for periods up to seven years for land acquisition and facility development for new communities developed by private enterprise. Previously, such loan insurance had been limited to housing. However, this "Title X" program has been found inadequate. As of the end of 1967, the FHA had guaranteed mortgages for only a handful of subdivision-sized projects, and no applications had been received from new-town developers. The program is not designed for the long-term credit needs of those building sizable communities where development may take from 10 to 20 years.

- Federal agencies have made grants as part of their broader programs for new towns. The new town of Columbia, Md., for example, is testing a new kind of community minibus system—operating on its own road network—with the help of a mass transit demonstration grant from the Department of Housing and Urban Development. The same Department has made a demonstration grant to Reston, Va., to show how technological advances in design and materials may make it economically feasible to mix new housing for low income families with other types of housing in a new town. Three Federal departments—Commerce, Housing and Urban Development, and Health, Education, and Welfare—joined in 1967 to make a $240,000 grant to the University of Minnesota to study technological innovations for an experimental city it is planning in the prairie west of Minneapolis; the Federal funds are supplemented by $80,000 from the University and business and industry.

There is a great need for more experimentation and innovation in the whole spectrum of problem-solving for new-town development. Toward this end, a comprehensive program of federally financed research and demonstration grants to stimulate and analyze new approaches is needed. Projects could include design of improved open space systems, design of new communities within various metropolitan frameworks, problems of new-community government, the relations of new communities to State and local governments, and the economic problems of new communities.

Beyond this, there is an urgent need for public acquisition or reservation of sizable parcels of land for metropolitan expansion. These areas could be held for subsequent public and private development as balanced communities, with land for open space and the other public facilities already set aside. Relatively few developers have the financial capacity or backing required to assemble scattered land holdings over a period of several years and then to invest additional millions of dollars in a community-size development to be built over a period of 10 to 15 years.

The States, and some of the larger local governments, through land assembly agencies, could assemble sizable tracts of undeveloped land, coordinate overall plans for their development with State and local transportation and utility routing plans, reserve land for public needs, then transfer most of the sites to private enterprise for development as parts of planned communities. In Pittsburgh, Pa., this is already being tried on a limited basis. The city's urban redevelopment authority is setting up a land reserve fund to acquire undeveloped land for eventual sale to private developers or non-profit groups for development, including low and middle-income housing.

The Council recommends that the Federal Government be authorized to:

(a) *administer a comprehensive program of research and demonstration grants to assist local and State governments and private enterprise in improving the development of planned new communities, including a study of the possibilities for development of new towns on Federal public lands;*

(b) *on a demonstration project basis, extend loans to State and local agencies for the advance acquisition of land for public and private development of new communities;*

(c) *guarantee long-term private financing obtained by new community developers for land acquisition, facility construction, and other development costs; and*

(d) *require that federally assisted new communities meet specific criteria concerning provision of low-cost housing, and location, design, open space and other environmental quality features.*

Federal-Impact Opportunities for New Towns: Unfortunately, some excellent opportunities for development of new communities already have been lost. No one, for example, applied the new-town concept when the decision was made to create a national space center in Florida.

Nor was it applied in 1967 when Weston, Ill. (population 400), was chosen as the site of the world's most powerful atomic research facility, the Atomic Energy Commission's $300 million proton accelerator.

This Federal decision is expected to attract at least 40,000 new residents to the area. The University of Illinois School of Architecture faculty proposed comprehensive planning for a community of more than 100,000 persons, based on the impact of the new laboratory; a faculty statement said that "lack of an action program of sufficient scope and authority will by default result in another and more tragic extension of slurbia." By the end of 1967, however, no such plans had been made. The county was not asked in advance to make any commitment for zoning or other land-use controls around the 6,800-acre site.

The Department of Defense, in cooperation with other Federal departments, works in advance with affected communities and States to ease the impact on local areas when Defense installations are shut down. No comparable policy, however, is followed in advance when sites are selected for new Federal installations.

There is need for an interdepartmental Federal-installation "impact" unit to function through all stages of planning for such installations, beginning with site investigation. The unit should work with a joint committee representing both the Federal agency responsible for the installation and State and local governments of the host area, and be headed by the Secretary of Housing and Urban Development.

The Council proposes that Federal agencies encourage planned new communities and other new urban developments near sites selected for major new Federal installations by securing advance planning and zoning commitments from local and State governments and by other appropriate means. It further proposes that an interdepartmental unit be established to work with local and State governments to help assure the quality of such new urban developments where establishment of new Federal installations will have a major impact.

THE EMERGING REGIONAL GOVERNMENTS

Environmental problems can be solved only on a scale which encompasses the total environment in which they operate. For some of urban America's most critical environmental malfunctions, this means an entire metropolitan region. But none of America's major metropolitan areas yet has demonstrated effective regional coordination or ability to make decisions on the

Columbia is a new town being carefully planned and developed in Maryland midway between the metropolitan complexes of Baltimore and Washington.

major functions of government affecting the physical environment of the region as a whole.

Typically, metropolitan regions are divided into many local political jurisdictions, each jealously protecting its traditional powers even though it may no longer be capable of dealing effectively with the problems of growth which have engulfed it. The States, whose jurisdiction encompasses whole regions, have not yet been able to cope with the environmental problems of metropolitan America.

Many types of efforts have been made to govern metropolitan areas. Annexation, city-county consolidation, special purpose metropolitan authorities, and associations of local governments all have been tried. They have succeeded only in part, usually because some local jurisdictions have refused to join the common effort. The approach now increasingly favored by local officials is the councils of governments concept.

Councils of Governments: In 1965 there were 12 councils of governments in metropolitan areas; by the beginning of 1968 there were more than 50, with another 30 in various stages of development. They offer prospects of reconciling political organization with the facts of metropolitan life. A more exact name would be "councils of government officials;" none of these voluntary associations of local elected officials yet have powers to compel participation by a local government, nor powers to make decisions binding on all members. Their proponents, however, consider them to be an evolutionary stage toward a new kind of limited government that can make decisions on certain matters affecting an entire metropolitan area, while leaving strictly local concerns to individual cities or counties.

It is probable that more metropolitan areas will organize councils—perhaps as many as 200 within five years—and that many will assume regional planning

functions. Their test, however, will come not in planning but in action: In reaching agreement on regionwide priorities, in deciding on major development projects, in operating regionwide service programs.

The Federal Responsibility: The Federal Government has new responsibilities in metropolitan America, particularly to facilitate the evolution now taking place. Several recent actions are designed to do so:

- In 1965, the Congress added metropolitan area councils of governments to the types of local planning agencies eligible for Federal financial assistance for comprehensive planning.

- In 1966, the Demonstration Cities and Metropolitan Development Act required that applications for Federal loans or grants for certain projects in metropolitan areas be reviewed by an areawide planning agency responsible to elected local officials of the area. This requirement had the immediate effect of moving the councils of governments from their earlier role as mere discussion forums to agencies which help decide priorities for federally assisted projects. Types of Federal grants covered by this review requirement are those for open space and outdoor recreation projects, hospitals, libraries, water systems, highways, airports, and other transportation facilities. There are further steps Federal agencies can take to further encourage the evolution toward effective regional solutions to regional environmental problems. There is, for example, a need for Federal grant-making and loan-insuring agencies to carry out the intent of the review requirement of the 1966 Act by refraining from supporting development projects which are incompatible with metropolitan areawide comprehensive planning. Exceptions to this general rule should be permitted only when justified in prior discussion with metropolitan area planning and general-government officials.

The Council proposes that the types of federally assisted development projects and programs in metropolitan areas subject to review by areawide planning agencies be broadened to include residential subdivisions and other development projects which affect environmental quality.

- The 1966 Act authorized supplementary grants for certain Federal-aid projects which are consistent with metropolitan area plans. By the end of 1967, however, Congress had not provided funds for this purpose. There is a need for Federal encouragement, through demonstration grants and otherwise, of new approaches to the problems of financing metropolitan area environmental improvement.

- In 1967, the Department of Housing and Urban Development made an $89,000 grant to the National League of Cities and the National Association of Counties to help operate an information service for councils of government. The service is intended to help existing councils and to encourage formation of new ones.

The States' Key Role: The success of councils of governments or any other approach to metropolitan environmental problems hinges on the States. Among recent developments in this field are the following:

- In the San Francisco metropolitan region, the elected officials of eight counties and 85 cities—representing 99 percent of the region's four million people—have formed the Association of Bay Area Governments. In 1966, this council of governments produced a preliminary regional plan which proposed a regional park and open space system, solid waste disposal system, and airport system. In 1967 the Association asked the California Legislature for powers to operate the three systems. In response, the Legislature established a committee of State legislators to make recommendations to the Legislature in 1969.

- In 1967, the Minnesota Legislature created a Metropolitan Review and Coordinating Council for the seven-county Minneapolis-St. Paul region. It is more a State than a local institution, with more power but less direct accountability to the voters than the typical council of governments. The governor appoints the members, in consultation with State legislators. The Legislature chose this form of organization over an alternative calling for direct election of Council members, as proposed by the State League of Municipalities. The Council has power to prepare a development program for the region, to review proposals for local projects and to veto those inconsistent with the Council's program. The Council is to recommend to the Legislature solutions to such regionwide problems as air and water pollution, waste disposal, and equalization of tax resources.

- In 1967 the Federal Advisory Commission on Intergovernmental Relations emphasized the importance of the States' role in the search for effective governmental machinery in metropolitan America. The Commission reported:

> The States are on the verge of losing control over the metropolitan problem; if they lose this control they lose the major responsibility for domestic government in the United States and in turn surrender a vital role in the American federal system. The tremendous task of financing, servicing, and governing metropolitan America clearly poses the greatest challenge to federalism since the Civil War.

One alternative to the councils-of-governments approach is directly elected metropolitan government financed with State taxes. It has also been suggested that more States should expand State financial assistance to local governments, particularly in paying a share of the matching funds required for Federal grants. Another proposal is that States should pay costs of acquiring conservation easements to prevent urban development on strategic tracts of the natural landscape in and around metropolitan areas.

State governments can also take a number of steps that involve little additional financial burden. For example, more States could (1) require that State-assisted development projects proposed for metropolitan areas be subject to local review by an areawide planning agency; (2) establish State offices of urban affairs or community development; (3) authorize their cities and counties to set up metropolitan service corporations to perform regional functions on a cooperative basis.

The Council recommends that the States foster creation of effective regional agencies capable of coping with areawide environmental problems in metropolitan areas.

ECOLOGY AS A GUIDE TO PLANNING FOR MAN

- A planning commission approves location of a shopping center in a low-lying area. Other developers get building permits for subdivisions on nearby hills; they replace the vegetative cover with asphalt streets and rooftops. Result: The shopping center is flooded regularly. Demands are made on government to build flood control works.
- A canal diverts a marshy region's natural water supply. Result: Portions of a National Park dry up, are ravaged by fires, and much of its fish and wildlife are destroyed.
- Subdivisions, streets, and parking lots spread out from the fringes of a metropolitan area. They occupy tree-covered hills, streams and meadows. Bulldozers carve pads for house sites, bury the streams in culverts, remove the trees. Areas where water collects and percolates into the ground to replenish underground supplies are paved over. Result: Gullying and sliding hillsides, a lowered water table, dying trees, dried up springs, suburban monotony.

Metropolitan regions seeking to direct urban development to achieve a healthy and attractive environment face a fundamental question: Upon what basis—upon what fundamental concepts—should planning proceed? Traditionally, it has been based on design, economic, *As much as 28 inches of water has collected in the basements of these homes sited without sufficient regard for the terrain.*

engineering, and transportation concepts that have considered natural processes only coincidentally, partially, and indirectly.

The science of ecology, also, offers guides to planning for man. Ecology is the study of the interactions between living things and their environments. It has been described as "systems analysis of nature." It concentrates on what happens when change takes place. It can provide a bridge between the natural sciences and the environmental planning professions. Application of ecological principles may permit the habitat of man to be not only healthier and more practical but beautiful. As one ecologist has suggested:

> A beautiful environment is one that is functioning properly: where energy from sunlight, water, minerals and soil are channeled into the production of wood and grass and wildlife, farm crops or garden flowers; where cities provide the challenge of work, the pleasures of play, and the security of homes; and where their populations are not cut off from those natural scenes that can recreate, inspire, and sustain them. Malfunction, whether reflected in congested traffic and polluted air, water that is fit for neither drinking nor swimming, decaying neighborhoods, or eroding hillsides, is ugliness; it reflects a breakdown in both man-made and natural order and a decline in both human and environmental health.

Ecology is concerned with the impact of man upon natural features and processes, and the total consequences—including the effects on man and his works. Thus, an ecological analysis of a proposed housing development on a steep hillside would not merely ascertain whether the site was sound from the standpoint of stability of the houses themselves. It would also consider the total effects of the development—on the valley below, on water runoff, on the vegetative cover, and on the streams, the fish and wildlife, and it would evaluate the alternative benefits of leaving the hillside undeveloped for watershed protection, as a buffer for noise and air pollution dispersion, and for recreation and scenic beauty.

Ecologists suggest that just as the stability and health of a natural community are dependent upon its diversity, the interactions among many kinds of plants and animals, and adequate space for each member, so the welfare of a human community may depend on equivalent interrelationships.

Plantings around preserved prairie potholes provide food and nesting areas for waterfowl.

They also suggest that certain kinds of lands, when left in their natural condition so that natural processes can operate without intervention, may perform such useful work for man that they may be worth more as natural space than as developed space. These processes include underground water storage and purification, dispersal of air pollution, and control of floods, erosion, and fire. Since most of these processes are related to the water cycle, it follows that stream valleys, marshes, flood plains, and ground water recharge areas are among the kinds of lands which should be considered carefully for reservation as open space.

The implication is that a metropolitan region's open space system should be selected and reserved in advance of development, on the basis of an ecological inventory, and that the lands selected should include those which are most useful in nature. Often these are the lands which man also finds most beautiful.

After a sound base of ecological knowledge has been established for development of an urbanizing area, the chances of blundering into environmental malfunctions, planning and development conflicts, and ugliness, should be enormously reduced. Working from this and the other knowledge available, creative work would remain for environmental designers of many disciplines, and public officials and citizens would have additional information to help decide among alternatives.

In addition to helping plan for regional development, ecologists can help communities make wise decisions on such everyday matters as approval of subdivision maps and land use permits. Although at least one city, Croton-on-Hudson, N.Y., now has a community ecologist, these professionals are in short supply. Initial efforts may therefore better be directed by State or metropolitan region planning agencies which can help pool scarce manpower. Even then, intergovernmental collaboration

Uncontrolled erosion causes silt to flow down the steep slope, partially burying the neighbor's fence and lawn.

will be essential. State and Federal assistance will be needed.

Some first steps toward such assistance already have been taken:

• In 1965, in his Natural Beauty Message, the President directed the Bureau of the Budget and the Office of Science and Technology to recommend the best ways the Federal Government may help advance scientific understanding of "natural plant and animal communities and their interaction with man and his activities." This report is expected to be published in 1968.

• In 1966, Congress directed the Department of Housing and Urban Development to carry out a comprehensive program of research in urban ecology. The Department was directed to gather and disseminate knowledge pertaining to urban ecology, and to apply this in projects undertaken or assisted by the Federal Government which affect urban development. The authorizing law emphasizes that much more needs to be known concerning the effects on individuals as "a highly complex, man-contrived environment" is substituted for an environment "conditioned primarily by nature."

• An Office of Ecology has been established in the Department of the Interior to marshal information about the ecology of specific regions—data which may be helpful to those making decisions in planning and development.

• The Department of Commerce has established an Environmental Science Services Administration. Its services include information on effects of urban encroachment on flood plains, and data regarding natural movement and dilution of air pollutants.

• Ecological concepts inherent in many operations of the Departments of Agriculture and of the Interior—for example, in planning for national forest units and in national park and wildlife refuge master plans—are beginning to be applied more broadly to planning studies of river basins and their landscape setting.

• In 1967, Senate hearings were held on legislation to authorize ecological analysis of major Federal development proposals, and on a proposal to establish a Senate select committee which would be concerned with the broad subject of technology and the human environment.

Examples of planning efforts using new approaches based on application of ecological knowledge are beginning to emerge:

• Wisconsin's outdoor recreation plan, developed in 1966 as part of the State's comprehensive development plan, is based on an inventory of 220 specific types of natural resources. The planners discovered that 90 percent of the resources held in highest esteem by residents of the areas involved are concentrated within elongated "environmental corridors," and that these corridors most often lie along stream valleys and ridges, encom-

A concentration of waterfowl thrives in the protected habitat of a Federal refuge.

passing flood plains and topography too steep to farm but offering prime opportunities as recreational open space.

- Washington, D.C.'s National Capital Planning Commission is considering a proposal to develop a comprehensive landscape plan based on an ecological inventory.
- In 1967 a study of alternative methods of evaluating resources was undertaken on the Delmarva Peninsula. This region, covering 6,000 square miles of Delaware, Maryland, and Virginia between Chesapeake Bay and the Atlantic Ocean, is only beginning to feel development pressures. It was believed to be a useful place to demonstrate how ecological information might be incorporated in regional planning. The project was sponsored by the Department of Landscape Architecture at Harvard University's Graduate School of Design in cooperation with local interests and The Conservation Foundation.
- In 1967, an American Institute of Architects' task force on the Potomac River Basin recommended a comprehensive ecological inventory as a first step toward systematic identification of the areas along the Potomac which are most significant for protecting the natural landscape. (See page 157.)
- In 1967, the University of Pennsylvania's Institute for Environmental Studies issued a research report, "Metropolitan Open Space From Natural Process," which identifies natural functions of various types of land in the Philadelphia Metropolitan Region from the standpoint of work performed for man without his intervention. The research was carried out under a Department of Housing and Urban Development demonstration grant in cooperation with the Pennsylvania, New Jersey, and Philadelphia area planning agencies. Field studies to learn more about effects of various kinds and intensities of urbanization upon the water cycle are being continued in cooperation with the Chester County, Pa., Water Resources Authority and the U.S. Geological Survey.

There is a need for more such innovative efforts by State and local planning agencies and to apply the resulting patterns and knowledge to urban development.

The Council proposes that Federal agencies encourage and support demonstration projects in ecological inventory and analysis, and in regional development based on the knowledge gained.

THE RURAL AREAS

BEYOND AND AROUND THE CITIES lie the vast expanses of rural America, occupying more than 90 percent of the Nation's area, encompassing an infinite variety of lands and waters from the urban fringes to the most remote wilderness of mountain and desert. Here are the lands that supply the cities with food for their tables, fiber for their factories, minerals for their smelters and mills. Here, too, are America's prime vacationlands, offering recreation and renewal among the scenic splendors of mountains and forests, rivers and lakes, canyons and coastlines.

In the beginning, all of America was rural. The colonists carved townsites and farmlands out of the woods. They cleared brushland for grazing, drained marshes, filled ponds and estuaries, dammed streams for water power.

On a small scale, these activities did not appear significant. But as the tides of settlement swept westward across the continent, as battalions of new machines gave men immense powers over nature, the impact on natural resources increased to devastating proportions. Careless farming damaged the fertile soils of the valleys and plains. Vast areas of the northern forests were logged bare or consumed by fires that darkened the skies. Overgrazing and plowing of grasslands led to dustbowls on the Great Plains and intensified floods in the Mississippi Valley. Hydraulic mining filled Western rivers with silt and gravel, burying farmlands and increased flooding of towns.

Toward the end of the 19th century, Americans concerned with this destruction launched the conservation movement. In a few decades they created such agencies as the Forest Service, the Bureau of Reclamation, the Soil Conservation Service, the National Park Service, the Cooperative Extension Service, the Agricultural Stabilization and Conservation Service, the Tennessee Valley Authority, the Fish and Wildlife Service, and comparable State agencies. They developed farm ponds, soil drainage, irrigation systems, contour plowing, sustained-yield tree farming, watershed water manage-

Plowing in line with the natural contours of the land prevents soil erosion, thereby insuring longer life and greater productivity of the soil.

ment, shelterbelts and wildlife management. They gradually learned to use the land and its resources with more respect for natural processes and the immemorial cycles of growth and regeneration.

By the middle of the 20th century, however, new demands were placed on the rural landscape. Cities invaded the countryside, using up prime agricultural land and forcing farmers onto less productive soils. Invaluable topsoil was still being eroded away on much of the Nation's farmland. And rural vacationlands became progressively more crowded with increases in population, income, and leisure time.

Like the cities themselves, the rural environments are feeling the impact of explosive national growth. To maintain and improve their quality requires new approaches and new initiatives.

The Countryside

FARMS AND RANCHES

A quality environment in the countryside derives from wise and careful husbandry that is in fundamental harmony with the land's ecology. Many kinds of efforts are needed to retain this quality. Soil, water, and plant management must reflect the concept of stewardship for the future. Research can light the way to better land-use practices. Education and demonstration of these better ways and cost sharing where needed help assure their widespread adoption. Land-use planning can provide open spaces of farmland near urban centers.

Rural expanses beyond the suburbs not only provide homes and working space for those who live there; they are also the scene of much of the outdoor leisure activity of those who live in cities. The rural landscape pleases or offends the eye as one goes from city to city about his daily business or travels to a vacation spot.

Rural land is more than a backdrop for the comings and goings of urban residents. It provides needed food, fiber, and timber as well as income to the producers. Of America's total land area, about nine-tenths is cropland, timberland, or grazing land. Three-fourths of the land is owned by private citizens. A large part of the remainder—the wilderness, large parks, and other reserved public land—is in remote places that many citizens visit only on vacation or other infrequent or special occasions.

Although more than a third of the privately owned agricultural land is managed to prevent soil erosion and to maintain or enhance soil fertility, nearly two-thirds still needs conservation treatment. This land will still wear the blemishes of soil erosion and become less fertile until needed measures are undertaken.

Erosion not only depletes the land from which soil is removed, but it fouls the waters and damages flood plains, streambeds, reservoirs, and harbors where the sediment is deposited. Silt is the major pollutant of surface waters.

Measures taken to eliminate soil erosion and soil deterioration not only restore vitality and health to the environment but also create landscape patterns that are pleasing to the eye. On farmlands, beauty and bounty go hand in hand.

Owners and managers of fertile soil often are not aware of the best land-use practices which preserve soil fertility. Even those who are aware may feel that the short-term economic gains from bad practices overshadow the long-term advantages of the better land use. The responsibility for protection of the Nation's soil resource lies with those landowners, agencies, and professionals closest to the problems. Technical services and guidelines, made available to county and municipal governments and professional planners, architects, and builders, can aid in proper site selection and erosion control for necessary suburban development and construction in rural areas.

Fortunately, many agricultural landowners have been engaged for more than a generation in a growing conservation movement.

SOIL CONSERVATION

Congress in 1935 established the Soil Conservation Service in the Department of Agriculture to initiate and direct a national program of soil and water conservation. Under enabling acts subsequently passed by every State, rural citizens have organized soil and water conservation districts that now embrace 99 percent of rural properties but do not yet include, in a cooperative program, all landowners. The Agricultural Stabilization and Conservation Service administers the Agricultural Conservation Program, which shares with farmers the cost of carrying out needed conservation measures on their farms and creates State and local committees of farmers to administer farm programs.

Two million of the Nation's 3½ million farmers are formally cooperating with local soil conservation districts and Agricultural Stabilization and Conservation Committees to establish good conservation and land-use practices.

A result of the work done by Soil Conservation Districts and ASCS Committees is a countryside of croplands tilled on the contour, of curving bands of strip crops, of rolling fields of grass, of tree-covered hills and streambanks, of landscaped farmsteads and treelined fields.

Progress has been made by landowners in incorporating natural beauty into the more than 800 small watershed projects in progress under the Department of Agriculture's Watershed Protection and Flood Prevention Program. Since early 1965 all recreation facility plans within these projects have included specific attention to esthetic values and in many instances local sponsors are asked to upgrade this aspect of their proposals before operations are authorized.

Rural Credit: The Association Loan Program of the Farmers Home Administration has had a significant impact on rural communities with various programs such as grazing associations. Grazing associations make facilities available for camping, fishing, hunting, horseback riding, dude ranching, and hiking as well as similar activities.

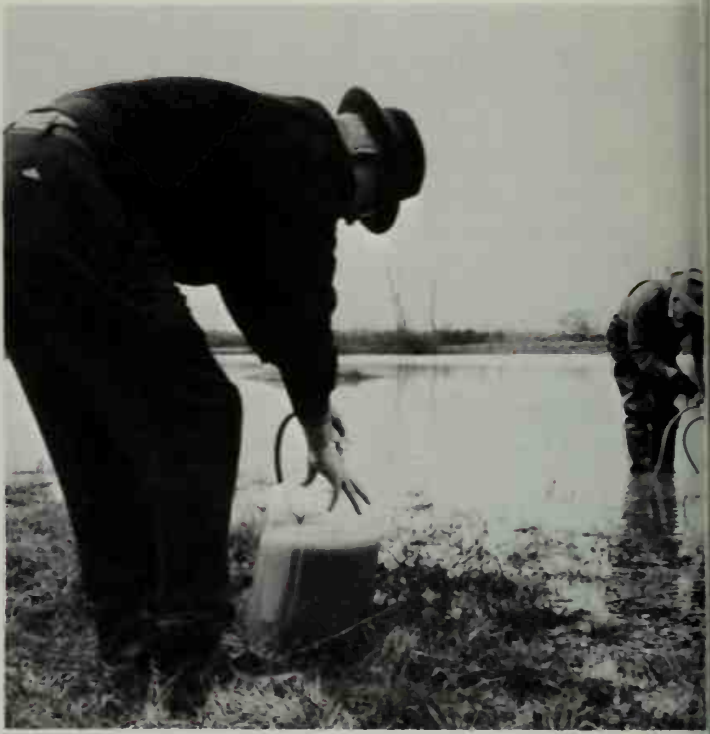
Long-term credit and technical assistance for acquisition and development or enlargement of outdoor recreation resources are also available to individual farmers and to associations of farmers and rural residents. Farmland and cutover timberland have been converted to beautiful, rolling, grass-covered golf courses and other outdoor facilities in over 1,200 rural communities.

PESTICIDES AND OTHER WASTES

The benefits of agricultural chemicals in producing the most plentiful and economical food supply in the world cannot be disputed. On the other hand, the possibility that insecticides, herbicides, fertilizers and animal wastes can contaminate some components of our environment also should be fully recognized.

Some persistent pesticides remain active in the soil for years and some find their way into food crops in quantities exceeding legal levels. In addition, fish and wildlife populations have sometimes been temporarily reduced by improper use of pesticides. An insecticide discharged as waste from a chemical plant probably caused the death of a great many fishes in the lower Mississippi River in 1965. The buildup and widespread occurrence of pesticide residue in fish and wildlife has been noted and requires constant vigilance to detect unwanted effects.

Water samples from different parts of the pond are taken to the laboratory for testing to monitor pesticide accumulation levels.



Through research, regulation, monitoring, and education, Federal and State agencies and the chemical industry are acting to increase the safety, as well as efficiency, of agricultural chemical use. The Federal Government has initiated a monitoring program to assess pesticide levels in food and feed, fish and wildlife, water, soil, and people. As part of this program, USDA's Agricultural Research Service determines the level of pesticides in soil, crops, and farm ponds and streams. Soil samples are collected at 15,000 locations throughout the country before, during, and after harvest. Crop

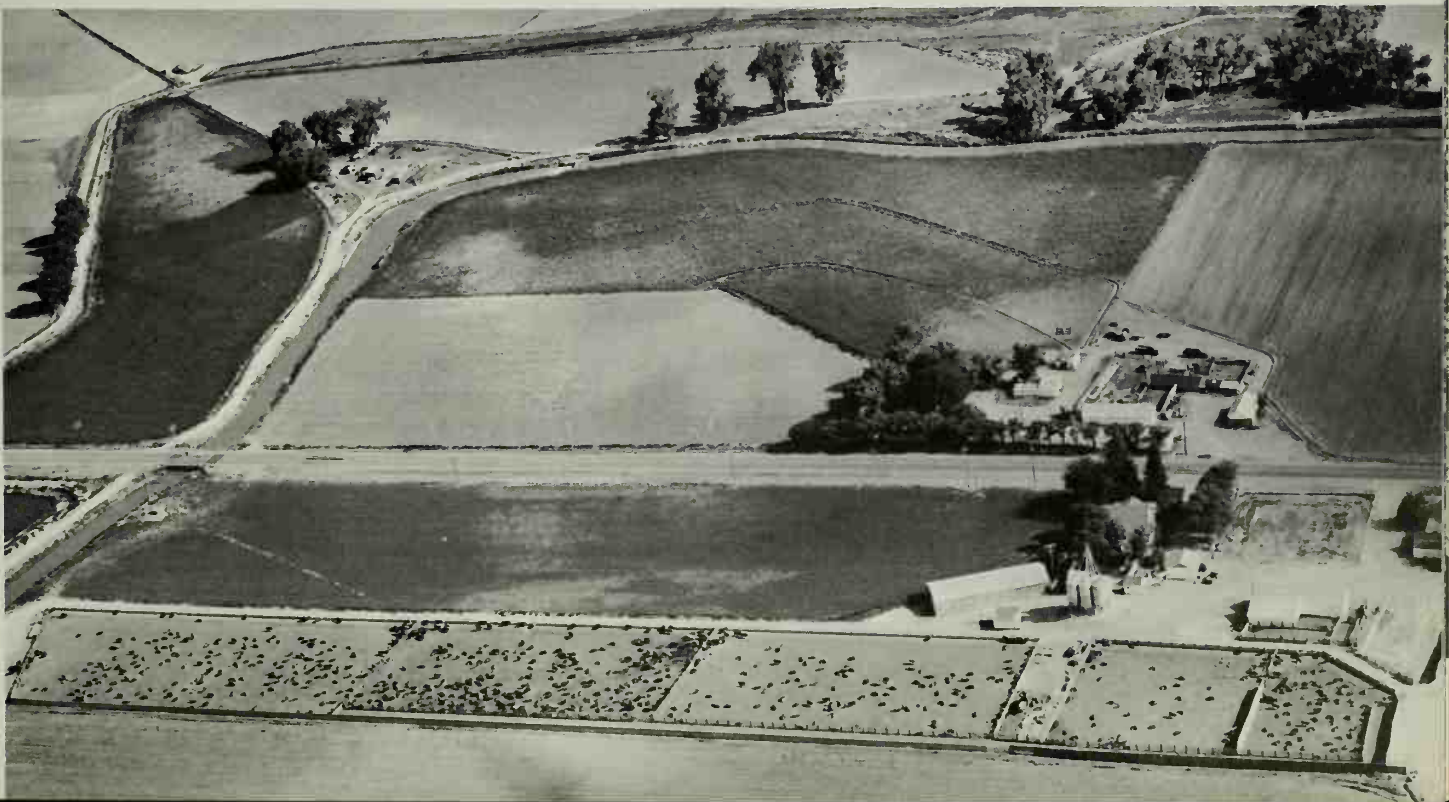
Cattle are brought in from pasture to be fattened in feedlots for market.

samples are collected when available, and water samples are taken from selected farm ponds and streams. All samples are then sent to a central USDA laboratory at Gulfport, Miss., where equipment analyzes the amount of pesticide present—if any. By knowing the level of pesticide present in soil and crops, USDA scientists are in a position to check on any potential buildup of pesticides and initiate any corrective action needed to protect the total environment including our food supply.

In addition to acquiring basic knowledge about the fate and persistence of pesticides in soil and crops, USDA has been taking other steps to lessen the chances of possible adverse side effects of pesticides. These include tightening requirements for registration of pesticide products; increasing emphasis on the use of biological, cultural, mechanical, and ecological pest control methods; and recommending the use of nonpersistent and low toxicity pesticides rather than persistent pesticides when they will do the job. The lack of complete knowledge on the total effects of pesticides demands constant vigilance and evaluation.

The Federal Committee on Pest Control reviews all pest control activities in which the Federal Government participates. The Committee, consisting of representatives of the Departments of Agriculture, Interior, Defense, and Health, Education, and Welfare, examines each proposal for soundness of planning and possible hazards to the public and to wildlife. Similar review committees have been established in many States and provide an added safeguard against possible hazards in pest control programs where there is no Federal participation.

The increased use of feedlots places poultry, cattle, hogs, and sheep in large concentrations, which results in tremendous volumes of wastes. A completely satisfactory system of management, use, and disposal of animal wastes to prevent polluting of soil has not yet been developed.



OTHER RURAL EFFORTS

The Department of Agriculture's programs extend to nonfarm rural landowners. In the Laurel County Soil Conservation District in Kentucky, in addition to 800 cooperating farmers, many nonagricultural property owners have been helped by the Soil Conservation Service in stabilizing eroding areas, making wildlife habitat plantings, and using soils information in planning for sewage disposal and proper use of land. Tree and grass plantings, land grading, tile drains, ponds and other improvements were installed at a country club, a textile company plant, several school grounds, a sportsman's club and along roadsides.

Several Federal agencies and many States, agricultural experiment stations, universities, and private groups are engaged in research or field tests of plants useful in conservation and landscaping. For example, the Agricultural Research Service collects plants from wild habitats in foreign countries and in the United States for use in research to develop superior strains and varieties of shade trees, ornamental shrubs, and turf grasses. These new, hardier plants often combine beauty with resistance to pests, diseases, and environmental stresses.

In 1966, the Agricultural Research Service obtained through international exchange and exploration 700 new collections of ornamental plants. It distributed 9,000 plants to nurseries, experiment stations, and other institutions for trial. The National Arboretum in Washington added a thousand new varieties to its collections for observation and testing.

In 20 plant-materials centers, which represent vegetation regions across the United States, the Soil Conservation Service tests and evaluates hundreds of kinds of plants. From these centers, a number of varieties having

Trees are planted to stabilize roadsides as well as providing beauty.

Flowering dogwoods provide beauty and control erosion.

special values for landscaping as well as soil and water conservation have been developed and released for field use. Among the outstanding ones are Cardinal autumn-olive, Lana vetch, Emerald crownvetch, birdsfoot trefoil, about 10 forms of bamboo, dwarf willow, and European alder. Many flowering shrubs have been given widespread use through these efforts, including multiflora rose, Amur honeysuckle, Rugosa rose, silky dogwood, redbud, chokecherry, and Russian-olive. In addition, intensive selection and testing of native grasses have produced varieties useful in roadside stabilization, restoration of strip-mined areas, wildlife habitat plantings, drought-resistant and cold-resistant plantings and beach and dune plantings. The Agricultural Research Service has shown that day lilies control soil and water run-off on slopes and along ditches and afford beauty for roadsides. This research could meet many of the needs of the natural beauty effort if it were appropriately expanded.

Throughout the country, the Department of Agriculture's Federal Extension Service has assisted State campaigns to improve the countryside. In Georgia the Extension Service cosponsored, with the State Department of Industry and Trade, a "Make Georgia Beautiful" month. Some 700,000 dogwoods, redbuds, and other ornamental trees were planted; 130 miles of roadsides were cleaned up by 4-H Clubs; 65 county committees were organized; 136,000 individuals and 2,000 organizations were active participants.

A demonstration project known as Green Thumb is underway in seven States and applications from six more are pending. A cooperative effort with States under sponsorship of the National Farmers Union and the Department of Labor, Green Thumb in its first two years enabled 1,200 elderly low-income rural residents to supplement their income by planting more than a million trees and uncounted shrubs along roadways, developing 110 parks, creating hundreds of roadside rests, reconstructing historic sites and buildings, planting flowers in public areas, cleaning out trails. Green Thumb participants understandably take great pride in their accomplishments.

The Greenspan program has enabled the Agricultural Stabilization and Conservation Service to make grants

Farmlands can offer space and facilities for outdoor activities, often within reach of city dwellers.

to 139 State and local governmental agencies to acquire croplands for conversion to scenic areas, wildlife habitat, or to other places where recreational opportunities are available. Agricultural lands can play a key role in providing recreational opportunities in surroundings of natural beauty.

Farmers and ranchers are encouraged by the Department of Agriculture and Soil and Water Conservation Districts to develop facilities for hunting, fishing, hiking and camping, where these activities can profitably supplement farm income.

In other cases, particularly near metropolitan areas where urban development is imminent, owners find it profitable to convert their land entirely to recreational use with particular attention to enhancement of natural beauty. A method widely used is to convert parts of farms to intensive recreation centers with a wide range of facilities such as swimming pools, picnic areas, and fishing.

The Council proposes that Federal agencies cooperate with State and local agencies and individuals in encouraging the creation of privately developed commercial, recreational areas for public use in surroundings of natural beauty and that consideration be given to enhancement of private lands for public enjoyment through cost-sharing of projects which improve rural scenic values. It further proposes that tools for implementing this policy should include supplying of technical information and technical assistance to lending institutions, businessmen and landowners, and government insurance of loans made for these purposes.

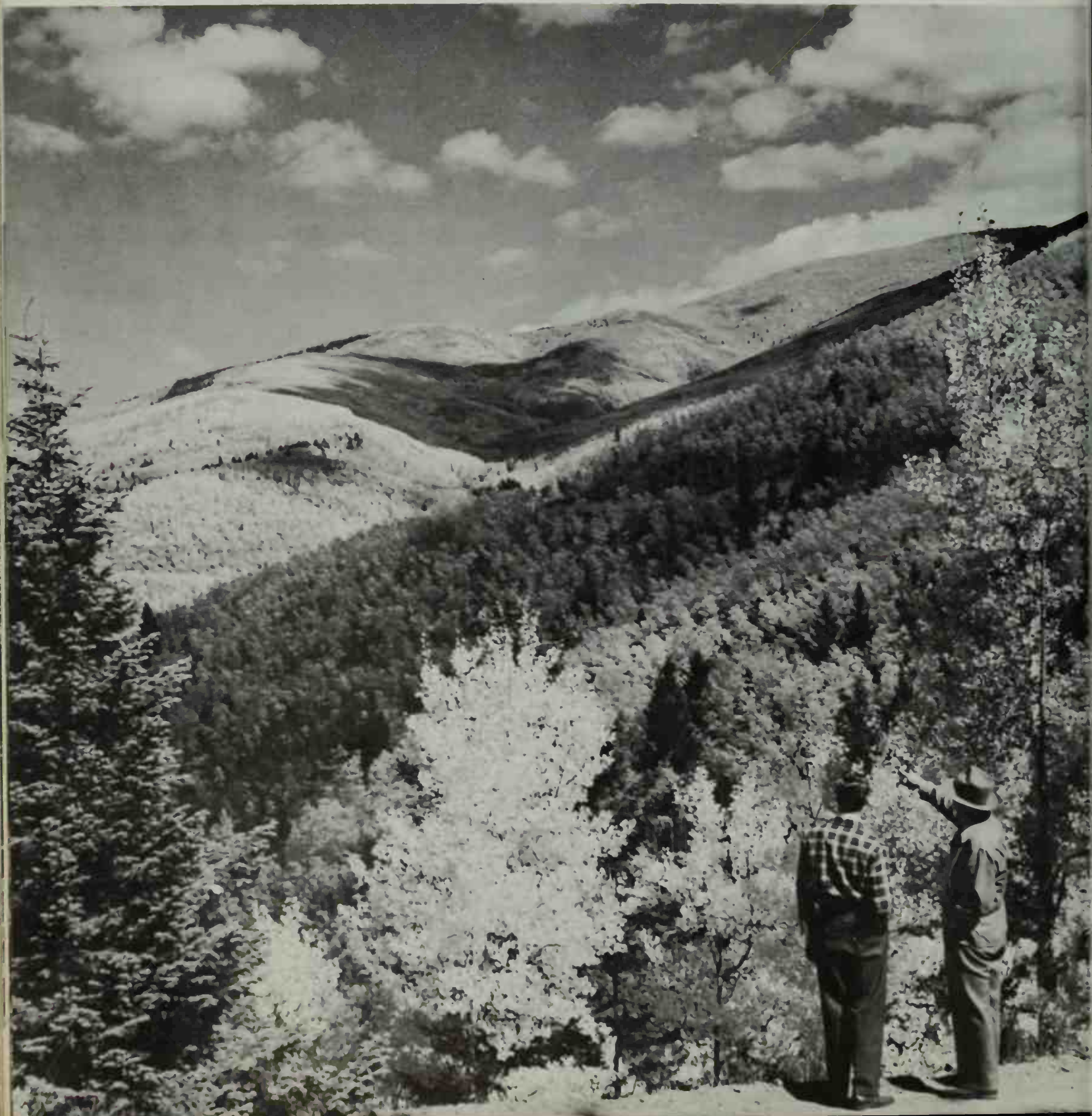
Basic to the many conservation efforts on rural land in the expanding urban fringes is reliable information about the qualities and adaptabilities of soils in each parcel of land. The National Cooperative Soil Survey administered by the Department of Agriculture has recorded some 70,000 different kinds of soil in the United States, each with peculiarities that affect its suitability for crops, forestry, recreation, building sites, and other uses. Land planners, builders, and farmers use soil surveys as a basis for practical planning. Only through realistic consideration of specific soil characteristics can land use be made to harmonize with the natural features of the land. However, only about half the land area of the 48 conterminous States has been mapped in sufficient detail for soil maps to be used for planning purposes. Therefore, the National Cooperative Soil Survey should be completed as soon as possible.

Around the edges of cities, agricultural greenbelts can add immeasurably to environmental quality by supplying diversity to the landscape, providing fresh air by dilution of airborne wastes, and diminishing summer heat. Agricultural activities can be entertaining and educational for urban residents, particularly children who may never have seen a cow milked or a crop harvested. Yet, everywhere these greenbelts are vanishing.

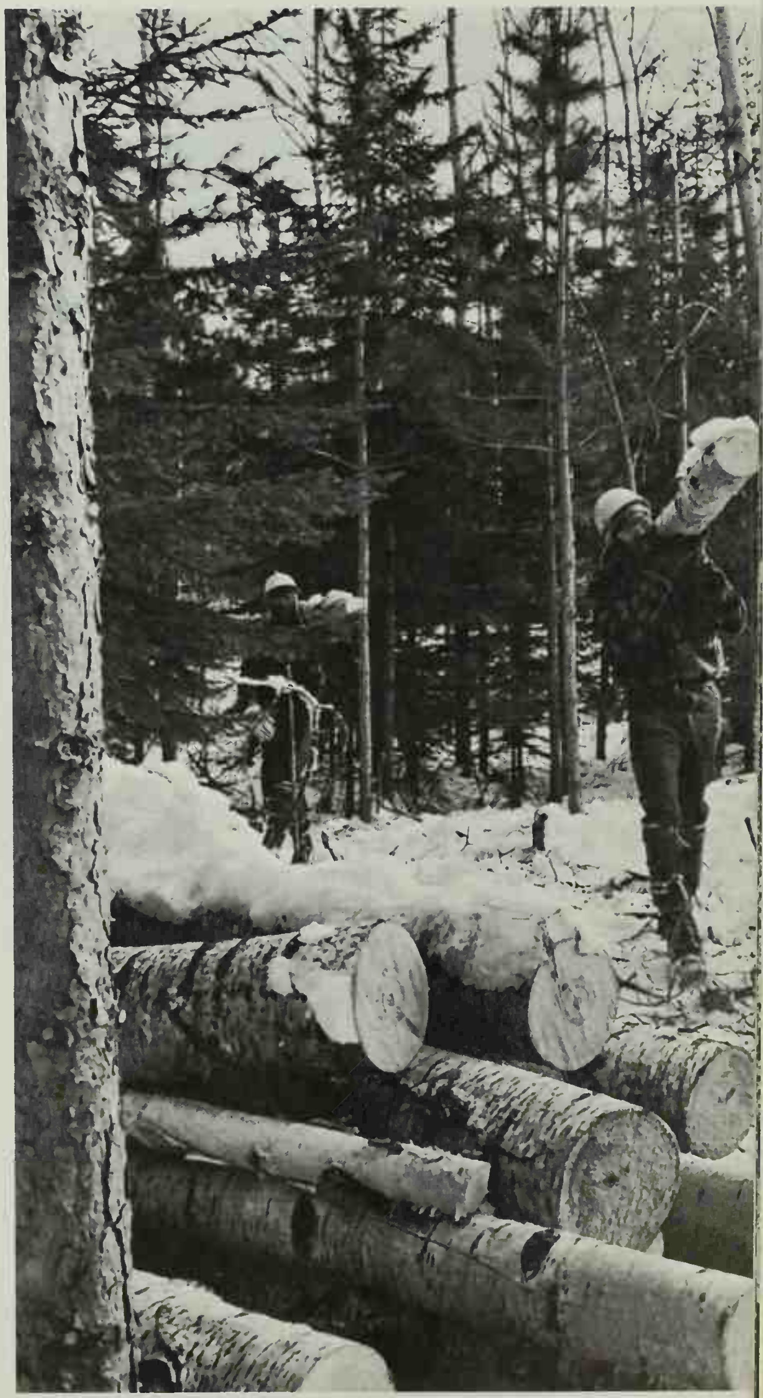
One method whereby a higher quality rural environment could have great visual impact is through the use of "conservation showcase" projects. Here, on private and public land dedicated to that purpose, could be shown the most successful land-use practices that not only enhance the natural beauty but also protect and improve the soil condition and water supply. The Secretary of Agriculture is urged to encourage such projects.

There are many other problems connected with continued farming in populated areas—problems of pilfering, fencing, vandalism, taxation. The owner who desires to continue to farm his land should not be driven off by urban rates of taxation. It should be a matter of public policy to maintain agricultural greenbelts in and around metropolitan areas by appropriate taxation and other measures such as purchasing farmland and leasing it back to farmers for continued agricultural use. (For means of implementing this policy, see page 104.)

The Council proposes that Federal agencies expand their programs of technical assistance to help States and local governments and landowners preserve working farmlands near cities wherever feasible, through greater use of tax incentives, agricultural zoning, Federal assistance programs, and related methods.



Good forest management techniques include cutting out "weed" trees to allow for proper growth of the forest crop.



FOREST LANDS

About one-third of the land surface of the United States is forested. These nearly 600 million acres of timber provide lumber for the building of America's cities and paper for the complex workings of the industrial economy. Carefully nurtured and prudently harvested, the forests can continue to supply not only a thousand varieties of forest products but inspiration and recreation to Americans to whom a periodic return to the woods offers physical and spiritual renewal. Forests are also a haven for wildlife and are sources of water for most of our streams and rivers.

These forests range from fir and spruce in the north woods to the pine groves of the South, from the oak and poplar of the eastern seaboard to skyscraping redwoods on the coast of California. They provide a great share of the natural beauty of this continent.

Several factors, however, inhibit management of the Nation's forests for beauty. First, about three out of every four forest acres are privately owned. Much of this is in areas of depressed economies and absentee ownerships, particularly the Appalachians, the Northern Great Lakes, New England and the Ozarks, and much of the flatter land of the South. Secondly, although the destructive logging practices of the industry's early years have largely been superseded by multiple use management and conservation techniques, some logging practices still damage the soil, water, vegetation, and other natural resources, and scar the landscape with their destructive harvesting methods.

Efforts to provide for natural beauty in the management of forests must involve the absentee owners, some of whom pay attention to environmental quality only when they benefit financially. Technical assistance and financial incentives are keys to landowner cooperation and interest.

Both of the principal methods of timber harvesting—selective logging and clear-cutting—are based on ecological knowledge of forests. Both temporarily

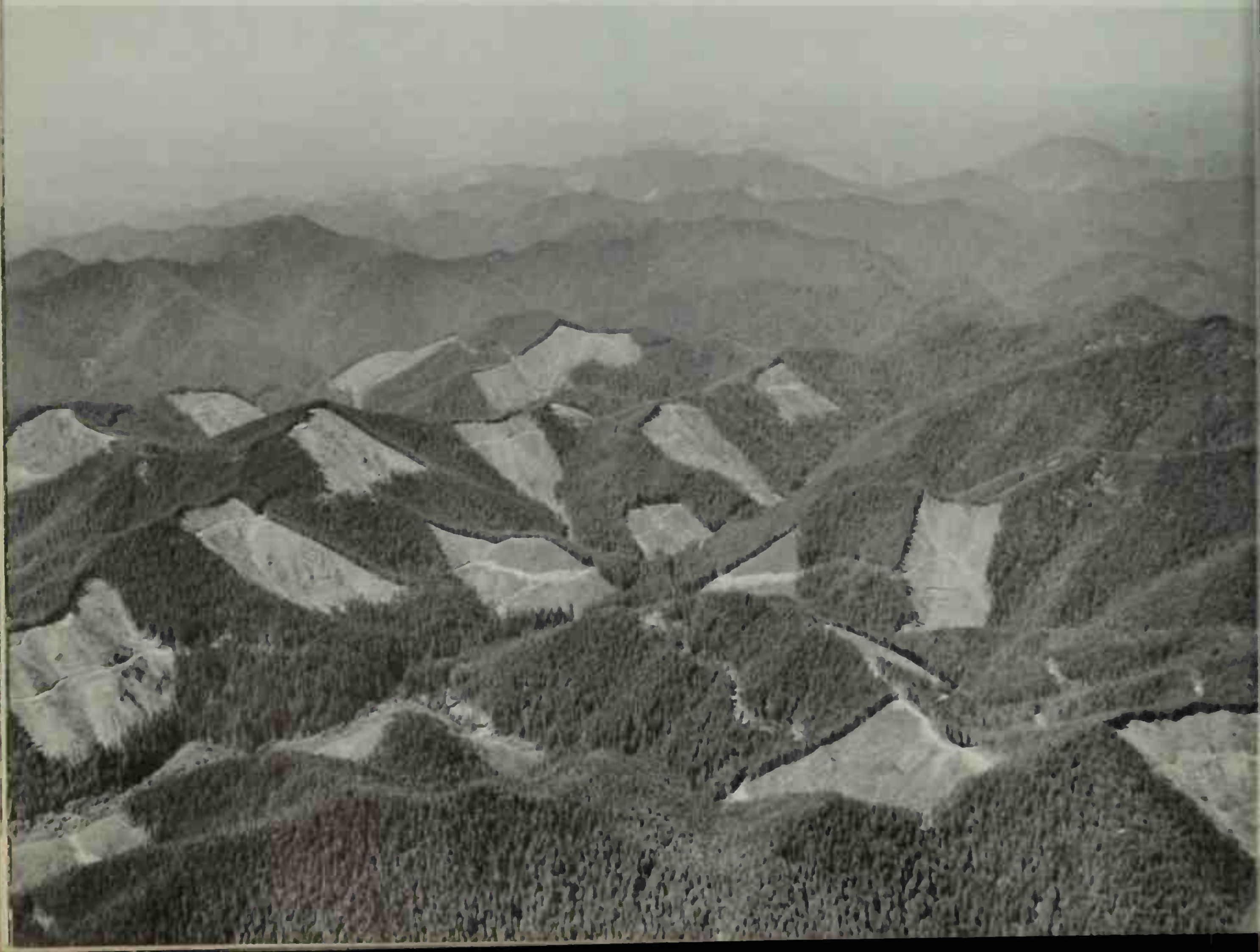
An initial cutting and primary road development have been completed in a forest of Douglas-fir and western hemlock.

diminish the beauty of the forest. In selective logging, only a portion of the trees on an area are harvested at any one time. Trees are harvested or left to grow on the basis of their age, the space between them, and for other reasons relating to keeping the forest productive and healthy. Although this method is more consistent with natural beauty than is clear-cutting, it generally is applicable only to certain forest communities and species of trees.

Clear-cutting involves logging all of the trees within a selected area. This method is applied to species that grow in even-aged stands and require open sunlight for the next crop to become established and thrive. Clear-cutting produces a drastic change in the landscape, often leaving it temporarily barren and unattractive until the new forest becomes established.

Several principles apply to preserving natural beauty in forests. These have been incorporated in the multiple use system developed by USDA's Forest Service.

Steep slopes with fragile soils need special care in logging and log-dragging operations. There is constantly a need for improved logging-road construction and



roadside drainage. Raw soil banks need vegetative cover to prevent erosion, requiring early seeding and planting operations. Logs can be lifted with overhead cables—or now, experimentally, even with balloons. Both practices minimize soil erosion and stream sedimentation harmful to fish. Opportunities also exist for fitting cutover areas into landscape patterns that do not detract from the total scene, but often add to the natural patterns. By opening vistas along highways, clear-cutting often enhances the enjoyment of the landscape.

Since the White House Conference on Natural Beauty, many managers of both public and private forest lands have become increasingly concerned with the needs and opportunities for protecting and enhancing natural beauty. They are managing the strips of trees along highways, lakes, and streams for their scenic values. Road locations and recreation areas provided for public use are designed and constructed with increasing attention to esthetic qualities. The Department of Agriculture is developing and applying new landscape management criteria to enhance the natural beauty of many of these recreation and future cutting areas. Forest road construction practices, too, are constantly being improved to preserve natural beauty and to provide increasing accessibility to forest areas for hunters, fishermen, and other recreationists.

Using the Cooperative State-Private-Federal Forestry Program of the 50 States and the USDA, the protection of natural beauty on privately owned forest lands needs to be encouraged.

The Council recommends that the Federal Government be authorized to promote preservation of scenic quality on private forest lands by offering cost-sharing incentives to landowners for investments and practices that provide natural beauty benefits to the public.

The Nation's public and private forests include most of its wilderness, natural areas, trails, recreation areas and scenic rivers. (See page 181.)

Development of access roads, camp sites and related facilities in forests across the country make outdoor living available to millions of Americans.

Special forest practices have been developed and applied to safeguard those portions of forests which have unusual and unique values, including preservation of wilderness resources. Wilderness, as a resource, receives equal consideration under multiple-use principles with other renewable resources. As the late Executive Director of the Wilderness Society said, "The best apparent hope for success in the preservation of . . . wilderness, is actually the application of the multiple use principles. To preserve some areas free from timber cutting will require adequate timber production in other areas. Preserving natural areas undeveloped . . . will require adequate provision of developed areas with . . . the facilities needed by large numbers seeking outdoor recreation with conveniences."

In 1967, the opening of 195 new camp, picnic, swimming and boating facilities, observation vistas, and visitor information sites by the Forest Service added capacity for three million visits to the recreation facilities of the National Forests and National Grasslands. Similar development is occurring in many State and private forests. Some of these improvements also create training and employment opportunities. For example, on Louisiana's Kisatchie National Forest, the Cenla Community Action Committee, working with the Office of Economic Opportunity, has signed an agreement with the Forest Service for a project to create employment opportunities for 80 previously unemployed local residents and to improve public facilities with the funds made available by the U.S. Department of Labor's "Operation Mainstream." This program will enhance recreation areas and roads and highways in and around the Kisatchie National Forest. Men working on the project will receive on-site training in construction techniques conducive to esthetic quality.

There are millions of acres of privately owned rural lands in America which are suited to forest tree production but which are now growing only weeds, brush, or trash trees. Properly planted, tended, and managed they would become not only a national economic asset but a source of beauty, wildlife habitat, and recreation. They would also become sources of income for their owners. The Federal Government should encourage proper utilization of these lands by initiating a special cost-sharing program, providing low interest loans, sponsoring organization of cooperatives, financing nonprofit management corporations, and training local people—especially young people—in woodland management.

MINERAL LANDS

The practice of surface mining has had a harsh effect on the American landscape. The traditional miner going into a mineshaft with his head lamp and pick has been supplanted in many areas by the goggled operator of giant earth-moving machines that turn up the surface of the land by the ton to dig out the mineral wealth that lies beneath.

Three million acres of the Nation's lands have been surface mined. New lands are being dug up at the rate of 150,000 acres a year, which approximates an area 10 miles wide and 25 miles long. Of the 3 million acres of land that have been surface mined, about 1.8 million acres have not been adequately reclaimed.

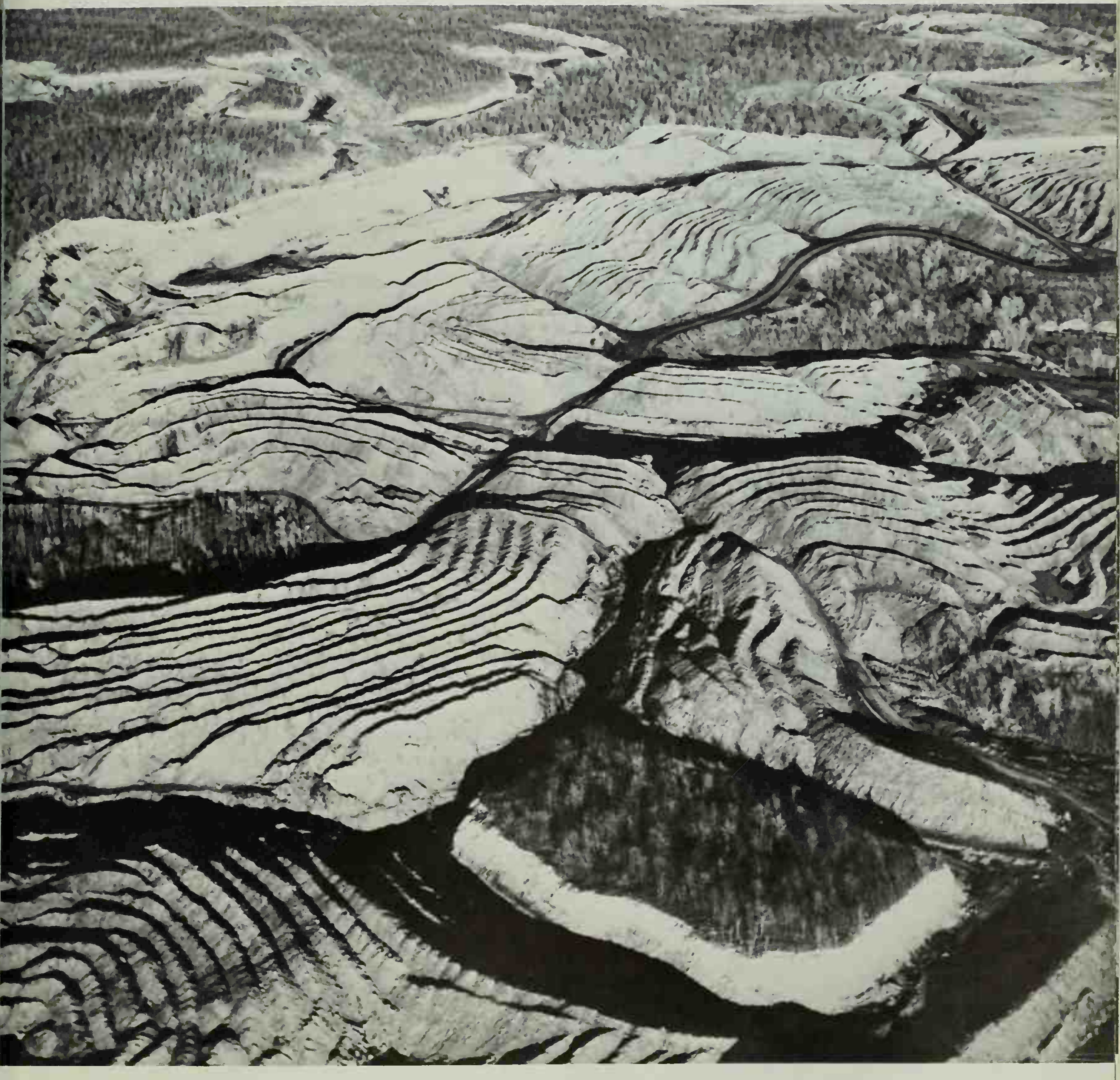
In strip mining for coal, which began in earnest following World War II, cuts dozens of feet deep sometimes continue for miles along a mountainside. Soil and broken rock spill down slopes, creating temporary scars on the hillside. Uncontrolled storm water can gouge deep gullies as it leaves the spoil and fills nearby streams with sediment. Mining operations for sand and gravel, iron ore, fertilizer, rock, clay, copper, and some rare minerals are not necessarily as devastating as surface mining for coal, but they pose similar problems in rehabilitating the landscape.

Land rehabilitation, however, is difficult and costly. Restoration of the original landscape in many steep mountain areas is impossible, although some of the damage can be repaired. On flat land and gentle slopes, the removed earth can usually be reshaped and new vegetation planted.

For years little attempt was made to heal strip mining scars. In 1965, when surface mining became a major subject of discussion at the White House Conference on Natural Beauty, eight States had statutes requiring reclamation of surface mined lands, but some of those laws applied only to coal. Some mine operators and reclamation associations, however, were voluntarily reclaiming some of their lands. Also, some specific rehabilitation actions were being initiated under the Appalachian Regional Development Act of 1965.

More vigorous action followed the White House Conference discussions. The Tennessee Valley Authority in 1965 began to require land reclamation in its contracts for the purchase of surface mined coal. The Bureau of Land Management in 1966 proposed regulations for land rehabilitation on all Federal public land mineral leases. The Forest Service also requires land reclamation. Operators must take all practicable steps to minimize erosion, prevent stream pollution during and

Surface mined land before reclamation is left with no protective cover.



Pennsylvania has recently enacted strong laws to regulate surface mining practices.

following their operations, conserve and replace topsoil, revegetate and restore the land to a productive state.

A tremendous reclamation challenge lies ahead in the proposed surface mining of several million acres of shale oil deposits in Colorado, Wyoming, and Utah. The Secretary of the Interior is drafting regulations to govern oil shale mining and restoration practices.

In 1967 the Secretary of the Interior, in cooperation with the Secretary of Agriculture, the Tennessee Valley Authority, and other Federal, State and local departments and agencies issued a report, "Surface Mining and Our Environment." Shortly thereafter, the President called for Federal agencies to revise their policies dealing with surface damage to accord with the report's recommendations. In response, the Secretary of the Interior proposed protective regulations to minimize mining damages on some 500 million acres of public lands.

By the end of 1967, only 10 States directly regulated strip and surface mining and reclamation. Eight more States, however, are seriously considering regulatory laws.

Although Illinois, Indiana, and West Virginia include strip-mining of all minerals and fuels in their strip-mining laws, most new State laws apply only to current mining and mainly to coal. Many abandoned surface mines have been allowed to become a public danger and nuisance. Whether the public burden will continue to grow depends in large part upon the assumption of responsibility by the mining industry and the effective enforcement of State laws.

A PARK IN A BORROW PIT

Even an abandoned borrow pit can become useful. In the fifties, the Washington State Highway Department acquired 12 acres adjacent to Borst Park in the City of Centralia for a borrow pit while Interstate Highway 5 was under construction.

After completion of the highway, the Centralia Park Board acquired the borrow pit site on which a lake had

Surface mined land can be reclaimed to provide needed recreation opportunities for local citizens and visitors from nearby population centers.

Cattle graze on pasture reclaimed from a surface mine's spoil bank.

formed as a result of natural spring flow and seasonal runoff from nearby rivers. Remaining native trees were preserved. Some additional ground cover and other native materials were planted, and picnic facilities and playfields installed. The park is a favorite for many miles around, and its attractiveness next to the Interstate highway between Portland and Seattle entices many tourists to stop and enjoy its facilities and its natural beauty.

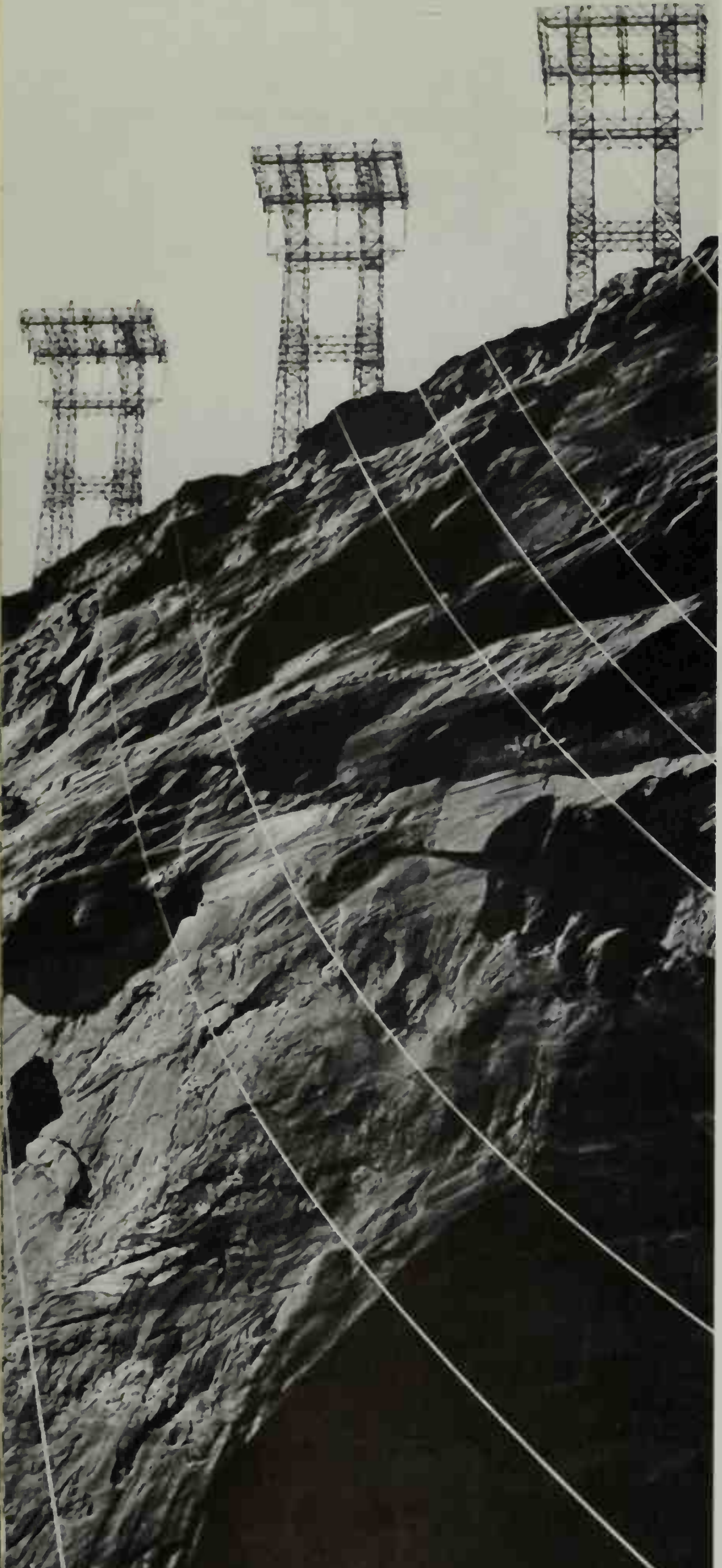
The Council concurs with recommendations of the Federal interdepartmental report, "Surface Mining and Our Environment," as stated below.

THE COUNCIL RECOMMENDS THAT:

(a) *for the repair of past damage to the landscape caused by surface mining, the Federal Government be authorized to participate with States and private owners in cost-sharing programs of land reclamation and rehabilitation, and to acquire certain surface-mined lands where necessary for adequate restoration;*

(b) *for the prevention of future damage, the States should exercise primary responsibility for requiring reclamation of private surface-mined lands and the Federal Government should be authorized to establish criteria and standards for such reclamation on both public and private lands and to enforce them if the States do not adequately do so.*

The Council proposes that Federal agencies continue to support and seek to expand research on reclamation of surface-mined land, and provide technical advisory assistance to mine operators and State and local agencies.



Well planned transmission routes can provide interesting patterns compatible with the natural landscape.

UTILITY TRANSMISSION ROUTES AND GENERATING PLANT SITING

Some of modern technology's greatest benefits have resulted from the extensive use of electricity, natural gas, and the telephone. Utility lines, however, often impair the quality of the environment. New generating plants can threaten environmental values through unattractive appearances or through thermal pollution of waterways. Even the rights-of-way for underground gas lines can cut unattractive swaths through forested areas and over ridges and hills.

High-voltage electric power transmission lines present special problems. Large towers often disrupt the skyline and their rights-of-way create scars on the landscape. While placing telephone lines and low-voltage power distribution lines underground presents no serious technological problems, the undergrounding of high-voltage transmission lines is still a technological problem. As a result, placing all such lines underground is not yet a feasible alternative.

A further problem connected with power lines is that electric utilities often have blanket powers of condemnation for rights-of-way and often are not required to consider the effects on natural beauty.

An estimated 44,815 miles of new extra-high-voltage transmission lines, requiring about a million acres of land, will have to be constructed in the eight-year period from 1968–1975 to meet projected power requirements and provide reliable electric service, according to the Federal Power Commission. Most will be located in the east central, north central, and far west regions of the United States. About half are already scheduled or under consideration for completion in the late 1960's or early 1970's.

Some industry sources estimate that initial installation of underground transmission lines, using orthodox technology, may cost from 8 to 40 times as much as overhead lines. When great distances are involved, the technologi-

New technology allows for better design of utility poles.

cal problems increase. Except in areas of great natural beauty or historical value, the technological and economic problems are still effective obstacles to placing all high voltage lines underground.

Partly as a result, however, of public airing of the problems at the White House Conference on Natural Beauty, some progress is being made. The development of a reasonably priced plastic covered cable and specially designed machinery now enables an ever-increasing number of telephone and power distribution lines to be buried.

On the plus side, in some places, the right-of-way for natural gas lines has been planted with low growing and attractive ground cover vegetation in place of larger shrubs and trees. This makes aerial inspection of the gas lines more effective. By contrast, trees and shrubs along electric transmission rights-of-way often are controlled by the use of herbicides, chemicals which kill vegetation. For esthetic reasons, if such chemicals are to be used at all, they should be used selectively and not broadcast so as to damage desirable as well as undesirable plants.

The corridor concept of requiring various utilities to place their transmission lines in one right-of-way is attracting the attention of environmental planners. A variant of this concept is embodied in the location of the Bell Telephone System's 1,800-mile underground coaxial cable from Boston to Miami, 260 miles of which is buried in the median strip of Florida's Sunshine State Parkway.

The Rural Electrification Administration of the Department of Agriculture has developed recommended standards for underground telephone-power line construction and equipment. During the one-year period beginning May 25, 1965, some 85 percent of bids it approved for new construction involved underground lines. The goal is to install underground most REA-financed telephone lines.

In 1966, the Department of the Interior submitted a plan for advancing high-voltage underground electric power transmission technology in a five-year, $30 million research and development effort. Two million dollars was appropriated by Congress to begin the program.

The Bureau of Outdoor Recreation requires that applications for grants from the Land and Water Conservation Fund for acquisition or development of State and local outdoor recreation areas describe actions to be taken to bury, remove, or otherwise mitigate any utility line intrusions upon the landscape.

Near Woodside, Calif., the Atomic Energy Commission, in constructing a 220,000-volt line which the AEC felt could not justifiably be placed underground at present costs, helped preserve a scenic area by using tapered steel poles painted a dull green instead of the usual lattice structures. These were located by angular routing. The agency took extra care not to damage foliage and terrain, using helicopters to carry in supplies and doing necessary tree trimming in an irregular pattern.

Both the Bonneville Power Administration and the Bureau of Reclamation of the Department of the Interior have adopted criteria to improve the appearance of power transmission lines and substations under their

Wise use of the land along transmission routes can mitigate the visual effects of the swaths cut across the countryside. Walking trails are another beneficial use of the rights of way.

jurisdication. Transmission lines will be located to avoid areas of high amenity value even if a longer route results. Power structures will be screened with trees, ground rises, and evergreen shrubs along rights-of-way of highway intersections or recreation areas.

In 1966, the Federal Power Commission's Industry Advisory Committee on Underground Transmission reported that the basic objective of research in underground transmission is to reduce cost, but that there is also a need for a comprehensive study to improve the appearance of overhead transmission structures, determine the positive esthetic influence of transmission lines, find optimum relation between transmission lines and community planning, and determine various attitudes of people and groups on the appearance of overhead wires.

The Administration's proposed Electric Power Reliability Act, in addition to providing for planning against future power failures, also deals with the esthetic effect of extra high-voltage transmission lines. Specifically, the legislation includes provisions to:

- Require certification by the Federal Power Commission of new transmission lines exceeding 200,000 volts, with authority to approve, modify, or disapprove such lines, following a 60-day period for public comment and following public hearings in appropriate cases;
- Allow Federal land management agencies to impose reasonable conditions with respect to nonpower land uses or to stay selection of rights-of-way when transmission lines cross Federal lands if the proposed route fails to give due regard to the affected resources or the preservation of esthetic or historic values.

The proposed legislation would give the public and the Federal Government a comprehensive role in the decisions leading to the location and construction of all high-voltage transmission lines.

THE COUNCIL RECOMMENDS THAT:

(a) *the Administration's proposed Electric Power Reliability Act be enacted to help protect natural and scenic resources by providing for regulation of the routing of certain high voltage transmission lines, and*

(b) *whenever possible, public utilities use combined or adjacent rights-of-way for overhead and underground lines, all proposed utility routes be reviewed by the local, State, and Federal agencies with jurisdiction over the land affected, and regulatory agencies regard environ-*

mental quality considerations as in the public interest and an integral part of generation, transmission and distribution of electric energy, and that all distribution lines be placed underground where technology and reasonable costs permit.

It is becoming apparent that the limited number of suitable sites for large generating facilities, long recognized as a factor in hydroelectric generation, will also affect the construction of thermal plants. Legislation has been proposed which responds to this problem. A bill amending the Atomic Energy Act, while addressed to other issues as well, would require nuclear plants to be adapted to "a comprehensive regional plan for the use and development of the power, water, and related land resources of the region," and would direct the Atomic Energy Commission to consult the Water Resources Council on this issue before granting a license. More recently, legislation has been introduced which would require the Federal Power Commission to conduct a survey, and prepare a plan, of suitable sites for major thermal generating stations. This bill includes provision for a moratorium on licensing of nuclear stations until the study is completed, subject to certain exceptions, and for their licensing thereafter only in conformity with the siting plan. Both of these bills represent attempts to deal with the environmental and water-quality problems raised by nuclear plants; the siting bill is not limited to nuclear plants but would extend to all forms of generation.

The Council proposes that each agency having responsibilities which relate to the construction and operation of electric generating plants review its authority with respect to land and water resource management with the object of determining what should be done, either by way of implementation of existing authority or through the enactment of additional legislation to respond to the serious environmental problems posed by greatly increasing generating site demands.

Boy Scouts enjoy the out-of-doors surrounded by well protected wildlife at a new power plant site.

THE RURAL AREA AS A COMMUNITY

The crisis facing America's rural environment arises from a worldwide trend of people moving from countryside to city.

In the United States, migration to the large cities, while still going on, is slowing and in some areas, perhaps is being reversed. Whereas, from 1950 to 1960, nonmetropolitan counties lost an average of 597,000 people a year, this shrank fivefold during the 1960 to 1963 period, to an average of only 118,000 a year. Rural outmigration has increased urban congestion and tension and turned some rural communities into virtual ghost towns.

By the year 2000, compared with 1960 according to current projections:

- U.S. population will be up 120 million.
- Land area required for outdoor recreation will be more than doubled.
- Land required for homes, schools, and factories, and other urban purposes, will double.
- Food needs will almost double.
- Timber product needs will nearly double.
- Water needs for municipal use will double—for manufacturing use, the increase will be fourfold.
- Irrigation withdrawals of water will be up 40 percent.
- Eight million more acres of land will be needed for reservoirs.
- Four million more acres of land will be used for transportation.
- Five million more acres will be needed in wildlife refuges.

Somehow, plans need to be developed to cope with these upcoming demands for rural resources and their great impact upon the countryside.

Somehow, the growing demands of urban people for rural recreation need to be provided for, within areas of natural beauty and safety.

Somehow, the rural areas need to become home for more people, not fewer, so that a higher quality life amidst natural surroundings will be available more readily to future generations.

Somehow, an urban-rural balance needs to be attained—and sustained.

A narrow, piecemeal approach of dealing with one resource, or one use, or one purpose at a time cannot provide lasting solutions. Nor can it build harmony into the dynamic ecological system that is man's total environment. Rather, through skillful coordination of uses and planned management of human and natural resources, the downward trend in the quality and adequacy of both urban and rural areas can and needs to be reversed.

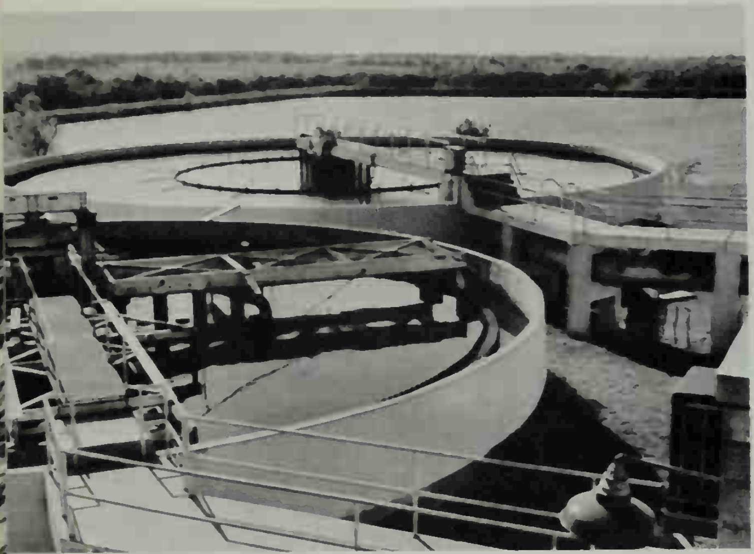
Reversal of the unwholesome trend of population shift from the rural to the city environment can be facilitated by making rural areas more desirable places to live. Credit programs of the Farmers Home Administration are making great strides in this direction by assisting communities of 5,500 population and under to build and improve recreational facilities and domestic water and waste disposal systems.

Setting higher priorities for both public and private investments in the rural areas and obtaining adequate incomes for farmers, and other rural residents will help. Public services and facilities need to be strengthened. Incentives for industry to establish plants in rural areas should be forthcoming. Industries which can decentralize should be encouraged to do so.

Local initiative, local leadership, and local planning can make Federal and State rural development programs effective. A group of counties, usually with a small or medium-sized city at its center within easy commuting range, can provide the necessary framework for economic development. When united for planning purposes, the people and governments of such a functional community can assess the area's needs and determine the combinations of internal and outside resources essential to spark growth.

The amenities associated with rural or small community living must be matched by a sound economic base that offers job opportunities equal to those available in large urban concentrations.

A water purification system adds to the multiple uses of a small watershed project that increases the industrial, agricultural and recreation potential of the area.



The multi-county community approach is being taken in a number of States, among them Kentucky, Iowa, and Georgia. The Appalachian Regional Commission and other regional groups are exploring this method.

One such plan well underway is that of a 10-county area in south central Iowa where there is an abundance of attractions that big metropolitan areas lost decades ago. Land for industry, business, housing, and parks is inexpensive and plentiful; there is plenty of open space for uncrowded recreation; the skies are clean and good water is abundant.

The multi-county vehicle that "Tenco," the 10-county area, chose "to get there" illustrates common threads running through successful rural development projects which produce a better economy and preserve natural beauty simultaneously.

Leaders chose the multi-county unit for these reasons:

First, many of the services people now demand have outgrown the resources of a single county or community. A multi-county unit has a large and sufficiently diversified economic base to permit relatively large scale production, quality services, institutions, and recreation at relatively low per capita cost.

Second, the larger area has enough population stability to allow effective long-range planning, even though individual communities within it may grow or decline.

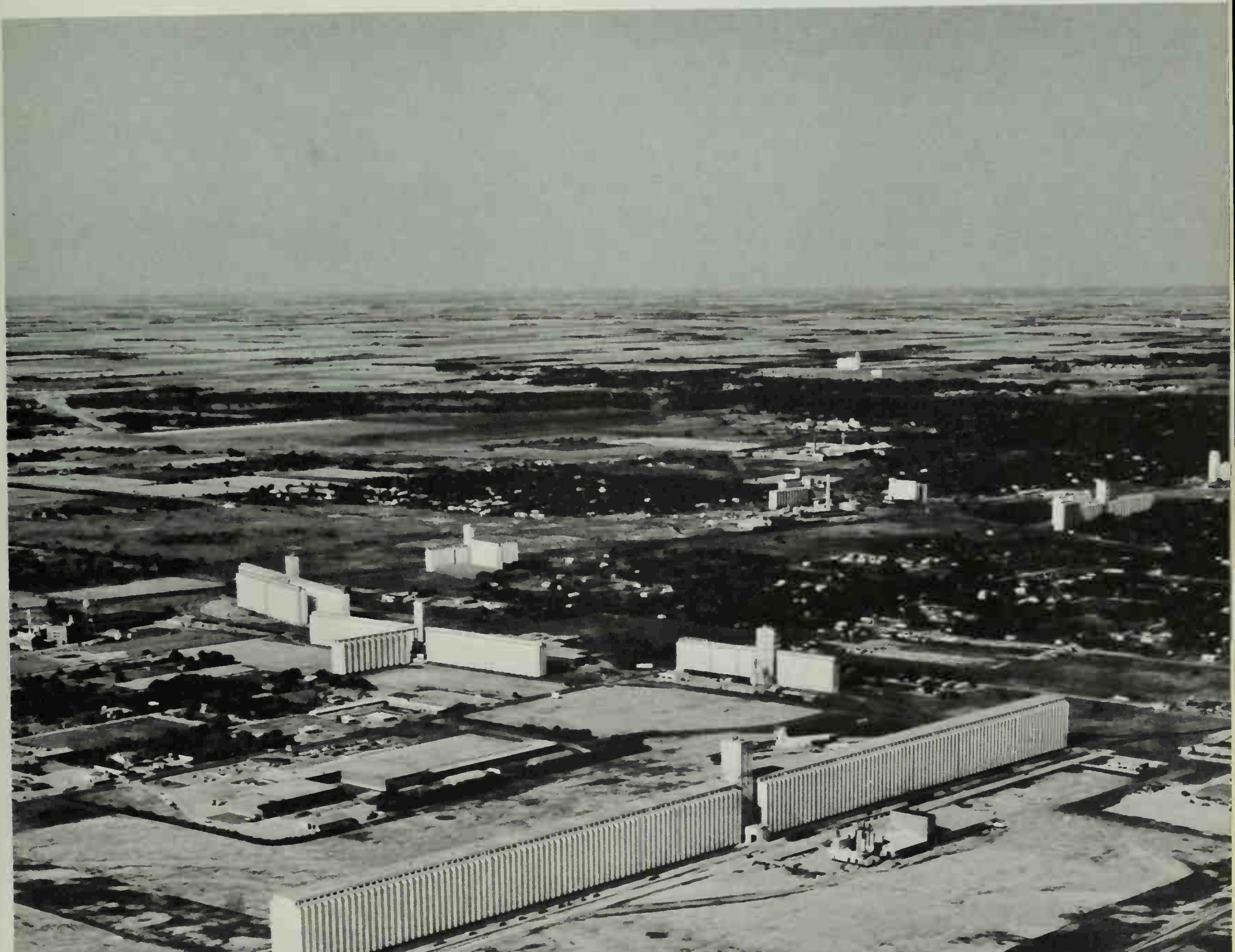
Third, the multi-county area allows pooling of resources to do a better job of going after, and obtaining, new industry.

And finally, it offers a much larger pool of trained, effective leadership—a commodity always in short supply.

After Tenco had isolated its problems, established priorities, and decided on the multi-county approach to attack them, it concentrated its efforts in four main areas: Agriculture—which produces two-thirds of the area's basic income—industry, education, and recreation.

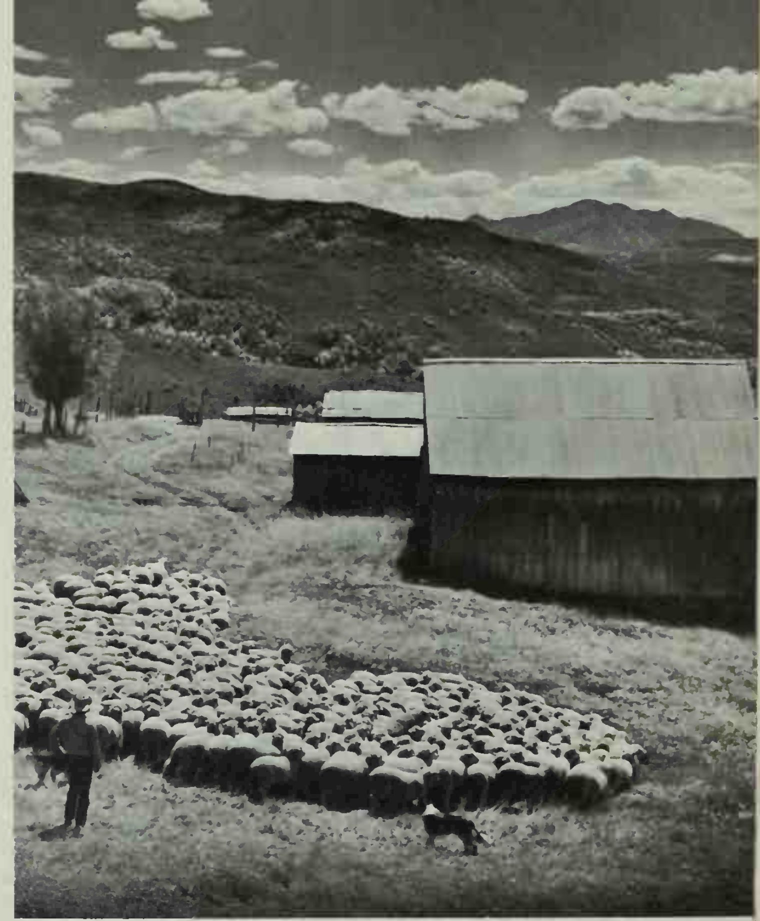
Present day ghost towns result from migration to the cities.

The rural community can be the logical location for industries that are related to agriculture.



Larger industries planning to locate in rural areas often seek assurance of pleasant surroundings and cultural amenities in the community which will attract and hold employees.

Careful planning can insure the use of the countryside without the loss of its natural beauty.



These are some of the things they've done:

- Established a pilot project to show how a rural area can develop a comprehensive manpower training program to test, recruit, train, and find jobs for its people.
- Built a new school, Iowa Tech, offering everything from cooking to computer maintenance. It has an enrollment of 400—which is expected to expand to 2,500 in the future—and serves a seven-State area.
- Discovered in a comprehensive school survey that 15,000 adults in Tenco had less than an eighth grade education. Local people are discussing consolidation of present schools and steps are being taken to insure that every Tenco child has a chance at a quality education.
- Attracted new industry, improved pasture, and established grazing associations.

The Council recommends that the Federal Government be authorized to expand financial assistance to multi-county units to assist rural community development planning. Prime goals of such plans should include urban-rural balance, and maintenance and restoration of the natural beauty of the countryside.

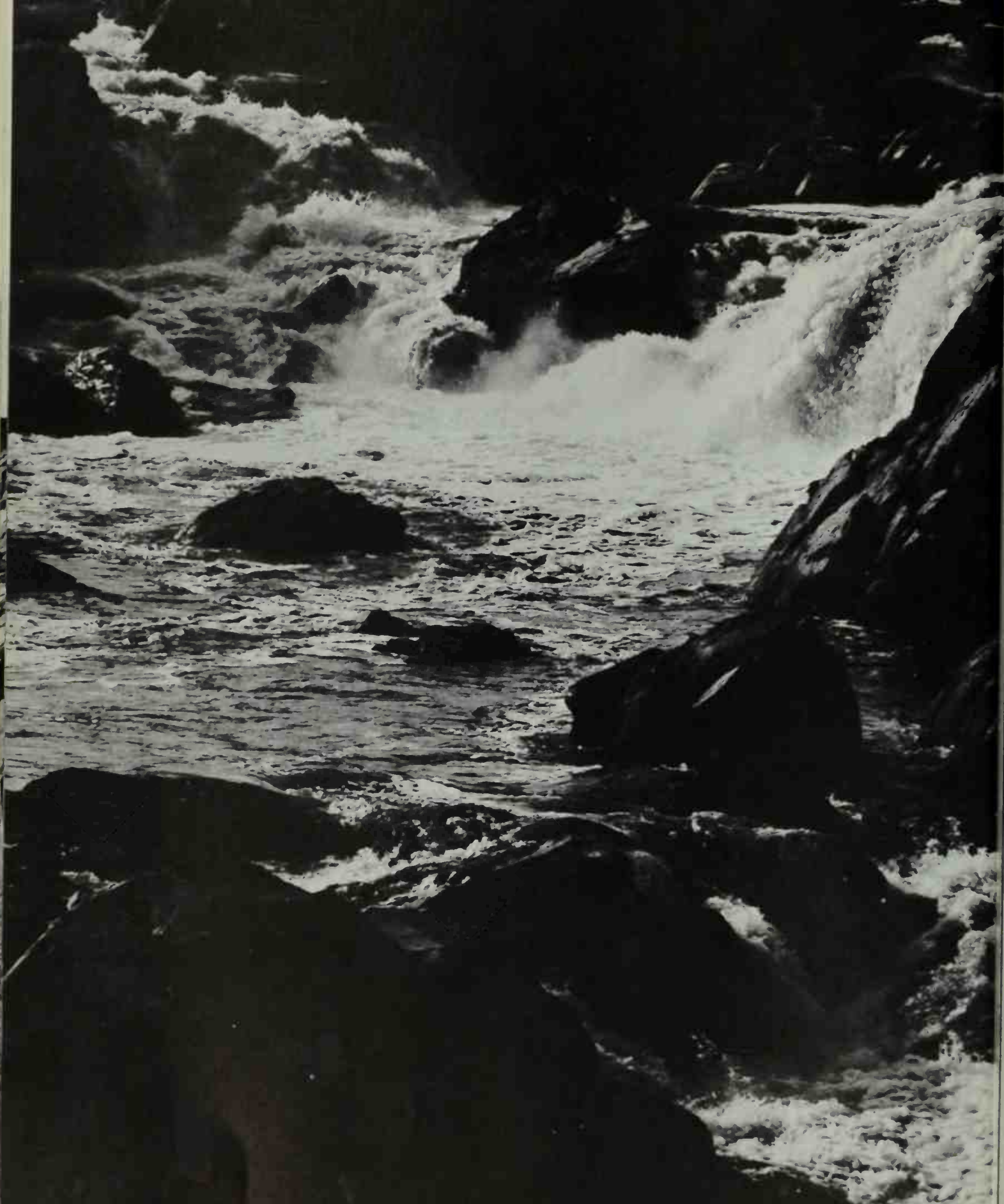
The Nation needs to know a great deal more about rural America, its problems, and its opportunities. To find answers to these questions and develop effective solutions, the Department of Agriculture has formulated a long-range research program for agriculture and forestry which has been presented to the Congress. The Agricultural Research Service, for example, is planning and designing regional landscapes which will best serve the needs of urban dwellers for scenic open spaces.

North of San Francisco Bay, the Forest Service's Forest and Range Experiment Station, the University of California, and Marin County jointly are preparing a regional landscape development plan for a key rural area which could soon be engulfed by urban sprawl. The area, virtually undeveloped, covers more than 35 square miles. The plan recognizes the need for urban expansion. Its aim will be to incorporate into a broad land use development program the requirements of man, land use capabilities, and the esthetic fundamentals required for good landscape management.

In December 1967, six members of the Cabinet sponsored a national symposium to focus attention on problems of rural-urban imbalance. The symposium brought together private citizens and the Secretaries and other officials of the sponsoring Federal departments: Commerce, Labor, Health, Education, and Welfare, Housing and Urban Development, Transportation, and Agriculture.

The Department of Agriculture is endeavoring to maintain or increase farm and ranch income at levels which will put the agricultural segment of the economy on a base comparable to that of the other segments and sustain and promote the family farm. It is also suggesting new approaches to the solution of this problem. An economically sound agriculture supports the industries and services that give a healthy base to rural communities. It will also help to provide the natural beauty and recreational opportunities that are found in rural America.

Such efforts represent only a beginning.



Water and Waterways

THE BEAUTY OF WATER in all its forms is legendary. The still waters of the Psalmist, the fountains of Rome, the cataracts of Niagara, the roar of the surf—through history such waters have inspired innumerable works of art and poetry. For the utilitarian values of water, most of America's great cities have been built on rivers, lakes or ocean. For recreation and inspiration Americans throng to the water's edge, to participate in water sports as well as to enjoy fishing and the sight of waterfowl in flight.

In this chapter are considered the rivers and flood plains, lakes and reservoirs, wetlands and estuaries, shorelines and islands. Some of the most pressing problems in conserving resources of tremendous value to man's welfare and spirit are centered on water and where the land and water meet.

RIVERS AND FLOOD PLAINS

Exploration and settlement of the American continent followed the Hudson, the James, the Mississippi, the Missouri, the Columbia, and many more of the Nation's rivers. First as trails to the interior, and then as sources of power, water for domestic and industrial use, and waterways for commerce and recreational opportunity, free-flowing rivers are part of the American heritage.

Today, a handful of these rivers remain untamed or unpolluted by man. Some are wilderness streams, dropping swiftly through virgin lands. Others flow silently, winding their way through shadowy swamps. As remnants of scenic beauty, the finest of the rivers remaining in their natural or near natural state deserve protection.

Too often in the past river flows were harnessed without adequate thought for their scenic, recreation, and fish and wildlife values. Shorelines were denuded of forest and streams were filled with waste.

Today, industrial pollutants and city sewage too often reduce water quality or make the waters unusable for drinking or recreation and offensive to view.

Waterways and waters in and near population centers serve the public best only if the public has access to them. Unfortunately, there often is no such general public access.

In essence, rivers and flood plains, as focal points of natural beauty, can be preserved if plans and programs:

- Provide for coordinated river management and regulation on a river basin basis;
- Set and enforce water quality and quantity standards to protect natural beauty values;
- Provide general public access to scenic corridors along river banks and lakeshores;
- Preserve especially scenic stretches of rivers;
- Provide that flood plain land use is sensibly controlled.

Recent national legislation offers great opportunities to retain or restore the natural values of the Nation's rivers:

The Water Resources Research Act of 1964 authorizes financial support to a water research center at a university in each State and provides for other water research. Already, the accomplishments of this cooperative Federal-State program of water resources research and training have been extensive. The universities' response to the Nation's need for trained manpower and knowledge to help solve water-related problems has included improvement of curricula, construction of new research and training facilities and employment of additional staff members from many scientific disciplines. High priority water research needs are being identified through publication of state-of-the-art papers and research has been enhanced by publication of a bibliography on the socioeconomic aspects of water resources and research catalogs. Specific projects underway include a search for better ways to estimate demand for "nonmarket" water resources like boating, sport fishing, and waterfowl production.

The Water Quality Act of 1965 increased the amount of grants available to municipalities for water pollution control. It also established the Federal Water Pollution

Planning and control of water uses will protect both practical and esthetic values of the country's waters.

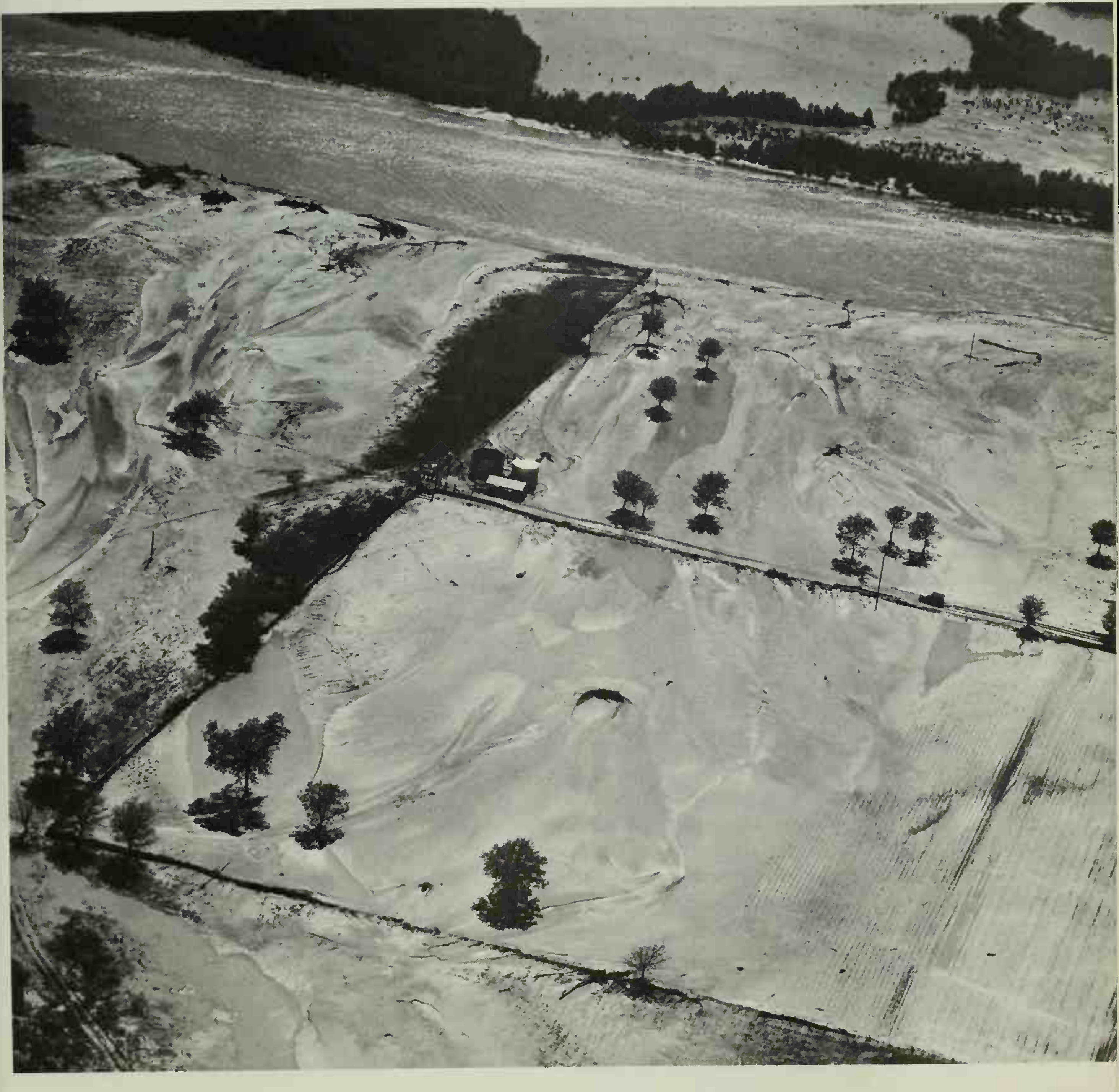
Control Administration to administer the grant program and review and enforce water quality standards on interstate and coastal waters. (See page 94.)

In the Water Resources Planning Act of 1965 the Congress established a policy of encouraging the conservation, development, and utilization of water and related land resources on a comprehensive and coordinated basis by the Federal Government, States, localities, and private enterprise. The Act also established a Water Resources Council, composed of the Secretaries of Agriculture, the Army, Health, Education, and Welfare, the Interior, and Transportation, and the Chairman of the Federal Power Commission. The Secretaries of Commerce and of Housing and Urban Development are associate members. The Director of the Bureau of the Budget is an observer. The Act establishing the Council also provides for coordination of Federal efforts in water resources planning, cooperation with State and local groups on water resources planning through establishment of regional river basin commissions, matching grants to States to improve their water resources planning programs, and assessments of the adequacy of the Nation's water supplies to meet future requirements.

In response to a proposal set forth in the President's 1966 message on Preserving Our Natural Heritage, the Congress is considering establishing a National Water Commission. Composed of seven non-Government members, the Commission would be charged with making a comprehensive review of all national water resource problems and programs and developing guidelines for more effective use of water resources.

Additional Federal action initiated the concept of model rivers. In 1965, the President directed that steps be taken to make the Potomac River a model of conservation, one where differing interests meld for the long-range benefit of all. Congress in 1966 directed the Secretary of the Interior to cooperate with the States of New York and New Jersey and, if they desire, Mas-

Hazards from improper use of flood plains include pollution of downstream waters from sediment, as well as loss of soil and damage to structures by high water.



sachusetts, Vermont, and Connecticut, to develop, preserve, and restore the resources of the Hudson River and its shores. To protect the Connecticut River, Congress in 1966 directed the Secretary of the Interior to study the prospects of establishing a Connecticut River National Recreation Area.

Encroachments upon flood plains, in the aggregate, have a significant adverse effect upon the public interest and destroy natural beauty opportunities along hundreds of miles of both rural and urban waterways each year. Such opportunities, once lost, are gone forever. The benefits of such waterways to people, coupled with the major economic loss potential when flood plains are encroached upon unwisely, are of such great importance to the Nation that positive action is needed to preserve them as open space.

Flood plains provide natural open, undeveloped space and offer tremendous opportunities for wildlife and recreational development. Frequently, high value agricultural crops can be produced upon them in years of normal rainfall. However, because homes, factories, and other structures are built in the wrong places, property and lives are often lost on flood plains. Annual property losses on flood plains exceed $1 billion, and damages are increasing.

These problems are being studied in a watershed research project by USDA's Agricultural Research Service on the Washita River Basin of Oklahoma. Researchers have established an elaborate network of stream gages, rain gages, and sediment samplers on an 80-mile test segment of the river. Land use along the river is being catalogued to see what effect it has on siltation, high and low water marks, and streambank erosion. Grasses that survive extended periods of flooding are being developed for planting in detention reservoirs.

Some industries must be located alongside waterways. Docks and warehouses, for instance, which are served by river towboats, barges, and other commerce, have little choice in location. Otherwise, little future construction should be placed in flood hazard zones.

Natural waterways that are used by flood waters have, in effect, an easement placed upon them by nature for intermittent use. Man's encroachment into the flood plain violates the natural easement and often adversely affects the vested public interest.

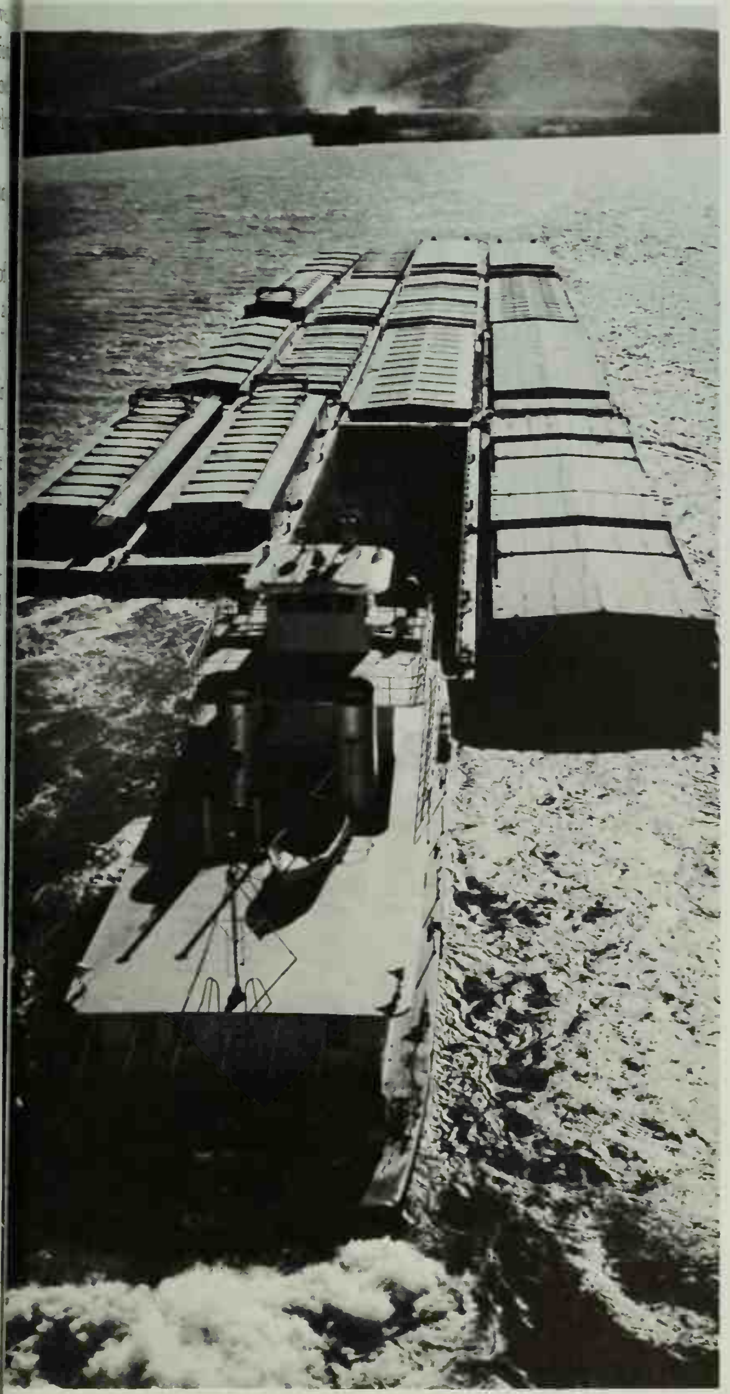
In 1966, the President acted twice to focus attention on floods and flood plain problems:

- First, by transmitting to the Congress a "Report of the Task Force on Federal Flood Control Policy on a Unified National Program for Managing Flood Losses."
- Next, by directing Federal agencies through their programs to discourage uneconomic uses and development of flood plains, and in particular, to consider the flood hazard in locating new Federal installations and in disposing of Federal lands.

The report which the President sent to Congress recommended national application of concepts pioneered in the Tennessee Valley. Under TVA's local flood damage prevention program a community may request TVA to undertake an engineering survey of its flood problems—the frequency of flooding which is likely, the depth and swiftness of flows, the areas of the city which would be affected. With this information, the community may get assistance from its State planning commission on methods of restricting the types and extent of development to be allowed in the flood-vulnerable sections, thus guiding urban growth away from the dangerous lands. Buildings in hazardous areas can be floodproofed if it is necessary to build in a dangerous section.

Over 100 communities in the Tennessee Valley have used TVA's services to prevent flood damage. Some 50 have followed through with regulations designed to prevent future flood damage.

Although it is not always done, most water development projects can be designed and built so as to be compatible with the natural scene, and to protect and create opportunities for fishermen, hikers, cyclers, and sightseers.



Inland waterways serve commercial functions while supplying scenic and recreation values.

The Council proposes that Federal flood control and other water resource development programs and projects seek to retain or restore natural channels, vegetation, and fish and wildlife habitats on rivers, streams, and creeks and apply the same policy to federally assisted public and private projects affecting rivers, streams, and creeks.

THE POTOMAC AS A MODEL

A river can be a common bond in bringing people of a region together. Village and city are located on its banks. Water supply, waste disposal, and land and water pollution all relate to the connecting streams and the river they form. Sediment control, land use, highways, and recreation are a function of the natural water flow and slope of the land—the total watershed.

With this in mind, the President in 1965 directed the Secretary of the Interior to cooperate with local units of government, States, and other Federal agencies in preparing a program to make the historic Potomac River Valley a model for the Nation. The resulting Federal Interdepartmental Task Force for the Potomac River Valley presented its preliminary report to the President in June 1967.

Every type of land use is represented in the valley, and every type of misuse as well, from raw sewage to industrial waste and sediments from eroded lands. All the problems of the Nation in regional planning for a better physical and biological environment are found in the Valley.

Task groups are working on many phases of the problem: Landscape and recreation, soil erosion and sedimentation, water quality and pollution abatement, and water supply and flood control.

The goals of the Task Force are to provide the basis for public and private action to clean up the river, to establish desirable land use practices and recreational opportunities, and to maintain the economic growth of the valley.

The Great Falls of the Potomac are an outstanding natural feature of the river which may serve as a model for future river basin development.

To complement the work of the Interdepartmental Task Force, the Secretary of the Interior asked the American Institute of Architects to appoint an interdisciplinary task force to study ways and means to carry out the President's objectives. The Task Force members were urged to (1) consider the esthetics of the riverside and the controls needed to keep it from being invaded by undesirable uses, (2) make specific suggestions for desirable uses of the urban waterfront, and (3) consider the land uses of the metropolitan Washington area. Finally, they were to recommend zoning and other forms of controls to assure development which would conserve its natural beauty, and to prevent sprawling growth with its accompanying destruction of the countryside.

In 1967, the AIA presented its report, *The Potomac.* Highlights of its proposals call for:

- A new approach to land use based upon respect for environment and recognition that the landscape represents the interaction and interdependence of many natural processes;
- A comprehensive ecological inventory of the Potomac basin to balance resources against demand and to serve as a framework for planning decisions;
- A new concept of zoning which has as its objective the conservation of nature and its processes rather than obtaining the maximum number of building lots;
- The development of new towns along the river, using the waterfront not only for recreation but for civic and commercial town centers;
- The establishment by the Congress of a Potomac Development Foundation to provide leadership in carrying out a plan for the protection of the Potomac basin, to

The country's rivers, great and small, require the attention of every level of government and of private interests if they are to be protected from misuse.

develop a comprehensive plan for its development, and to make development loans and hold lands for subsequent lease or sale according to the comprehensive plan. This Foundation would be funded by an annual Federal appropriation of $50 million for five years.

WILD AND SCENIC RIVERS

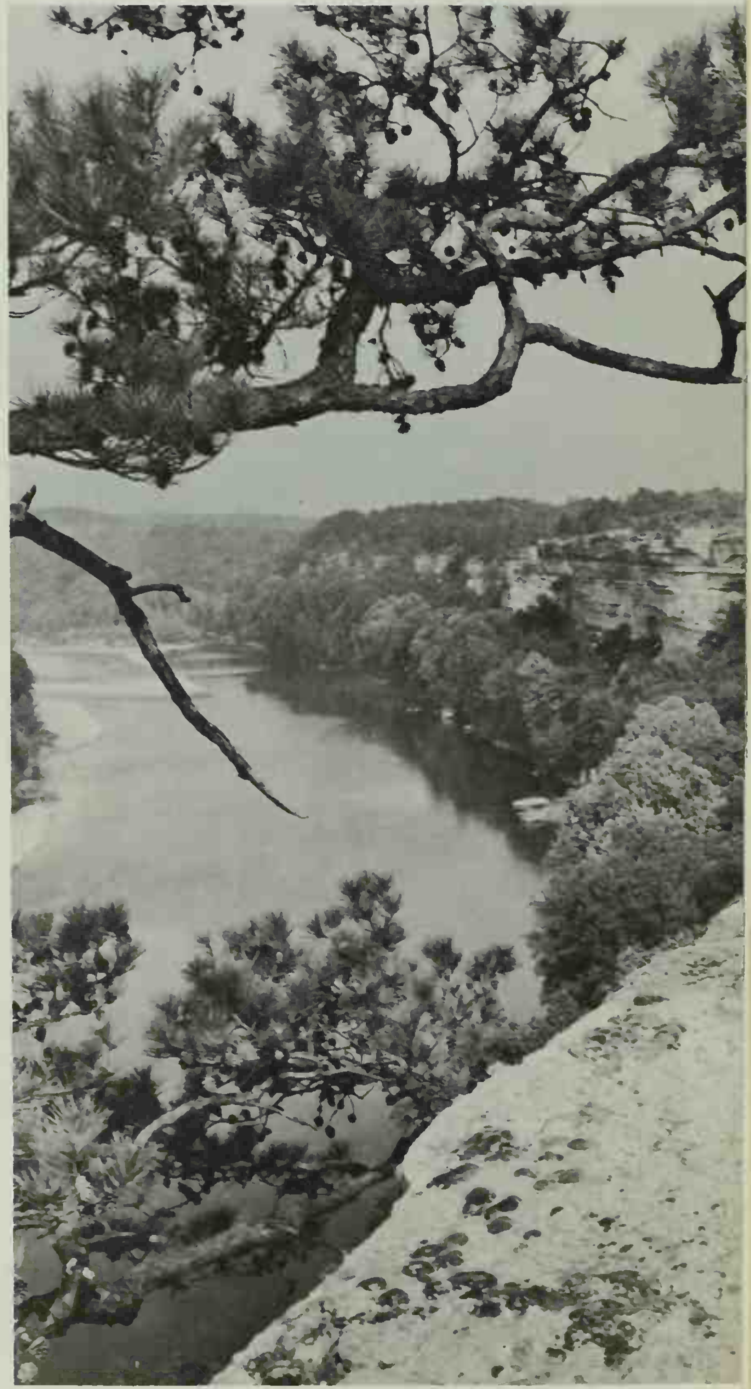
In nearly every case, land ownership patterns require Federal or State legislation to protect scenic riverways. Outstanding scenic rivers must be identified and evaluated during early stages of river basin planning if they are to be successfully dedicated for such uses.

Stream studies for such purposes can provide information needed to compare this potential with that of alternative uses for the river and related land resources. Such studies should be an integral part of comprehensive water resources planning.

Scenic river programs adequate for present and future needs require cooperation between various units of government and joint public-private effort. Federal efforts should be directed at river segments important enough to attract visitors from several States or nationwide. State and local governments should concern themselves with rivers that are primarily of interest and benefit to residents of the State. Private enterprise is in a position to protect valuable sections of certain streams and should be encouraged to do so.

Several bills to establish a National Wild and Scenic Rivers System are being considered by the Congress. One bill, designating more than 500 miles of wild and scenic rivers, passed the Senate in 1967. This bill recognized two river types and recommended scenic rivers like the Namekagon in Wisconsin and the Eleven Point in Missouri, and wild rivers like the Middle Fork of the Clearwater in Idaho. Twenty-eight rivers named in the bill would be studied for possible future inclusion in the system. Administration of the rivers would be by local and State agencies or jointly with the Secretary of the Interior, the Secretary of Agriculture, or both.

- California's State Fish and Wildlife Plan, a part of



White water is one of the attractions of the Allagash for outdoorsmen.

The Allagash Wilderness Waterway is a landmark in efforts to preserve the quality of the Nation's rivers.

the State's outdoor recreation plan, in 1966 recommended establishment of a State Wild Rivers System. In 1967, the concept was broadened to include all "scenic waterways," including bays and estuaries.

- Iowa is studying the possibilities of restoring buffer strips of trees along segments of scenic rivers.
- Kentucky, in its State Outdoor Recreation Plan, recommended in 1965 a basic State wild rivers program, which, to start with, would keep five rivers free-flowing from source to mouth and protect scenic stretches of 32 others.
- Maine, in 1966, passed legislation and a bond issue providing for establishment of an Allagash Wilderness Waterway, along one of the Nation's outstanding wild rivers.
- Minnesota, in 1963, enacted legislation allowing the Commissioner of Conservation to designate, mark, and acquire land for campsites along popular canoe routes.
- Missouri's Legislature is studying a bill to establish the "Ozark Wild Rivers Preservation System."
- Montana has created a State Recreational Waterway System, recognizing high-quality streams for scenic and receational values.
- New Mexico is planning a State wild river system.
- Wisconsin, in 1965, designated parts of the Pine, Popple, and Pike rivers as State wild rivers.
- Tennessee enacted in 1968 the first legislation by a State to establish a comprehensive statewide scenic river system.

MAINE VOTES TO SAVE THE ALLAGASH

In 1966, the people of Maine acted to save the beautiful Allagash River so all can enjoy its wilderness attractions. Flowing northward through great forests of fir and pine toward the St. John River, the Allagash affords 145 miles of superlative canoeing and fishing water.

Some time ago, the owners of timberlands along the Allagash pledged protection of wilderness values, but others felt that protection in perpetuity was needed. This concern generated various proposals ranging from calls for public parks to full waterpower development.

In 1966, after studying various proposals, the Maine

Legislature approved an Allagash Wilderness Waterway plan and referred a $1,500,000 State bond issue to the voters. The Secretary of the Interior pledged $1,500,000 from the Land and Water Conservation Fund as the Federal share to match, dollar for dollar, State purchase of lands and easements. Maine's Park and Recreation Commissioners conducted an extensive program to inform the public on the merits of the plan. Other public officials, newspapers, and many citizens joined the effort, too. In November 1966, the voters of Maine approved the bond issue—by more than two to one. Acquisition of the area by the State has begun.

The Allagash Wilderness Waterway will preserve 300,000 acres, some 36,000 of which are water. The 85-mile-long corridor varies in width from a minimum of two miles along both shorelines of the river to one mile from the shoreline of certain lakes and ponds. Timber cutting, roads, and camps will be prohibited for a distance of 400 to 800 feet from the shoreline. Existing camps and resorts within this zone will be purchased, but some may be leased back for continued operation.

The Council recommends:

(a) *enactment of legislation to authorize establishment of a national system of wild and scenic rivers to protect outstanding stretches of rivers and their shorelines, and*

(b) *that the States establish controls over the lands adjoining wild and scenic rivers to protect their natural beauty and prevent land uses which would damage their quality, both natural and manmade, and establish statewide river protection systems complementary to the proposed nationwide wild and scenic rivers system.*

Constructing a dam to control erosion of the gully results in a pond which insures a stable supply of water for the farm and provides good habitat for fish and wildlife.

LAKES AND RESERVOIRS

More and more, man depends upon lakes and reservoirs for many daily needs including power generation, flood control, industrial development, recreation, navigation, municipal water supplies, and the irrigation of arid lands.

However, today's effluents often pollute and accelerate the natural aging processes in these bodies of water by filling them with sediments and stimulating the growth of obnoxious plants and organisms which thrive upon phosphorus and other plant nutrients derived from sewage, manufacturing effluent, barnyards, and even land runoff. The reservoirs sometimes result in environmental pollution in themselves, since they frequently flood many acres of flood plain and during periods of water drawdown, expose unsightly and unsavory mudbanks.

Tremendous progress has been achieved in reconciling the many developments for water with the effects of these developments upon the physical environment. Major projects can serve multiple purposes, project planning and operations for each purpose should be adapted in the light of the effects on all others.

The Federal Government is helping to meet the multiple demands for controlled supplies of water:

- In licensing non-Federal power development through the Federal Power Commission;
- In navigation, flood control, water supply, streamflow regulation, water quality control and related projects of the U.S. Army Corps of Engineers;
- In large-scale power, irrigation, and municipal storage projects administered by the Bureau of Reclamation of the Department of the Interior;
- In comprehensive river basin development which the Tennessee Valley Authority has underway; and
- In impoundments on small watersheds and private farmlands through programs of the Soil Conservation Service and the Agricultural Stabilization and Conservation Service of the Department of Agriculture.

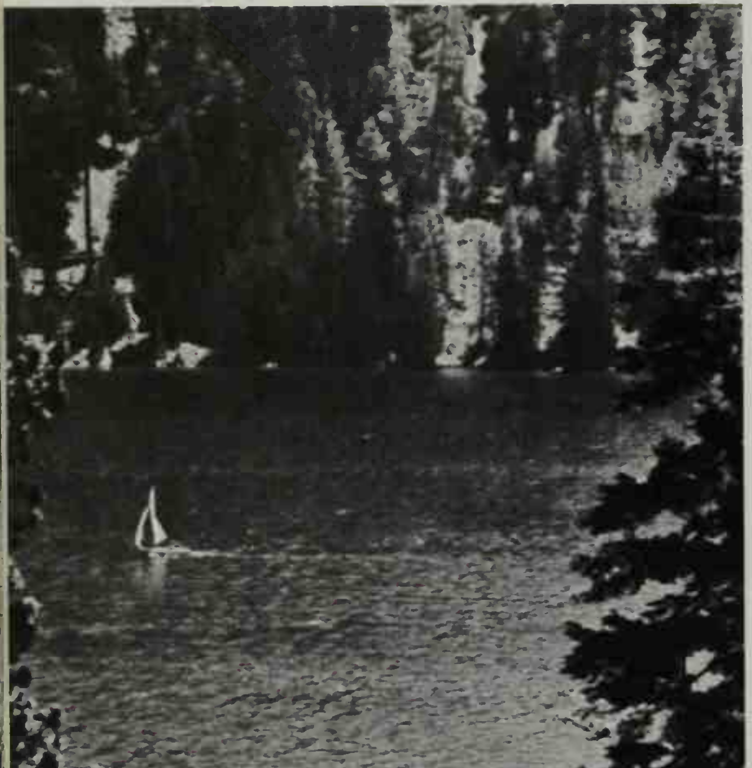
The demands for multiple use water projects which maintain environmental quality were set forth in policies, standards, and procedures advanced by the President's Water Resources Council in 1962. These policies formed the basis of the Water Resources Planning Act of 1965. This Act embodies the concept of coordinated planning for use of all resources values within a project area. Along with water quality, navigation, water supply, power, flood control, drainage, and other traditional development objectives, fish and wildlife enhancement, provision for recreation and esthetic beauty, and historic and scientific values also were specifically named as potential development objectives and benefits. The cost of achieving natural beauty in project development constitutes an integral part of the cost of design, construction and operation of the project for its authorized purposes.

The Tennessee, the Colorado, and the North Platte are examples of rivers where constructed works have enhanced fish and wildlife resources, while at the same time providing dependable water supply to farms and cities. The building of dams on these rivers has eliminated the threat of devastating floods which formerly threatened the lower reaches of the river and the adjacent towns as well as changing the life of each river below the dams. These rivers are now inhabited by trout and bass whereas only less desirable fish were formerly able to survive. The manmade lakes have been developed as recreation areas where water sports are enjoyed throughout the year.

Many other examples of the value and benefit of regulating stream flow and quality by conserving water in reservoirs are to be found throughout the Nation. Water development projects on the Missouri River have substantially reduced silt load there, diminished annual

Small watershed protection provides for irrigation—and swimming and waterskiing.

A lake results from a power company's impoundment.



flood damages and flooding of valuable property, provided game fish and waterfowl habitat, made navigation possible, provided recreational opportunities, created irrigation water supplies, and generated electric power—all a result of joint Army-Interior programs. The Columbia, the Arkansas, the Ohio and its big tributaries, the upper and lower Mississippi, and the rivers of California's Central Valley are others among hundreds of similar examples.

The Tennessee Valley Authority, since the design of its first dam in the mid-1930's, has adhered to the policy of making beauty, public usefulness, and recreation "built-in" features of each project. Simple, flowing architectural lines are designed to blend structures with the landscape. Visitor lobbies incorporated in the structures help the public see and learn about conservation.

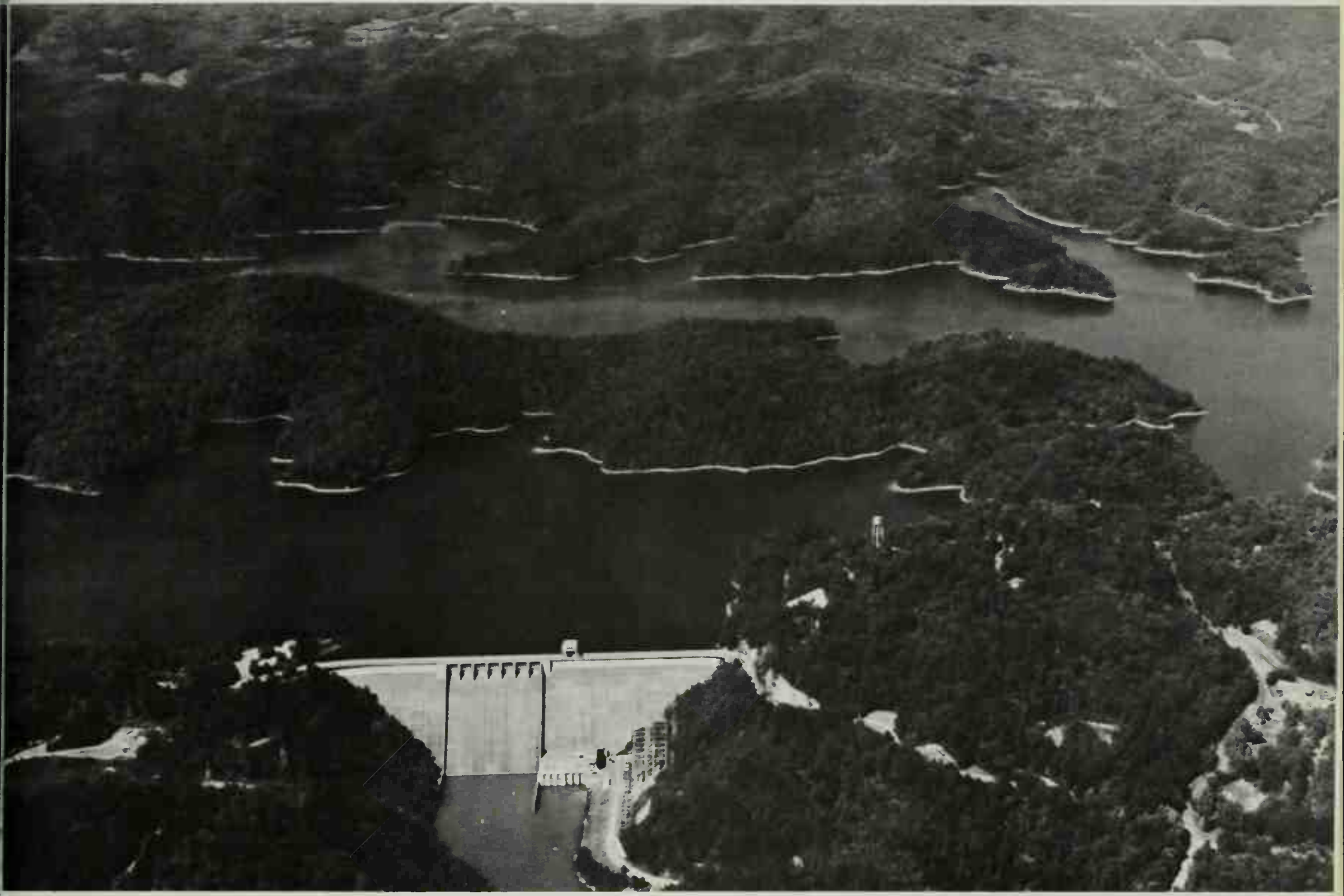
TVA early recognized the natural disturbance which might result from river impoundment. To offset this in part, TVA has made available to States and to other Federal agencies almost 200,000 acres of land and water for wildlife refuges and management areas.

The Federal Power Commission since 1963 has required that applications for licenses to build hydroelectric projects include plans for public recreation such as boating, swimming, fishing, camping, and picnicking and for enhancement of fish and wildlife resources affected by a project. In 1967, the Federal Power Commission commenced a general review to determine recreational use and development at projects licensed prior to 1963 as a basis for determining potential for expanding such facilities.

In 1966, the U.S. Army Corps of Engineers established Environmental Planning Branches in each of its Division headquarters. In 1967, the Bureau of Reclamation began an Improvement Appearance Program for its existing and proposed water resource and power generating facilities.

The Corps of Engineers has water management programs and has cooperated with the States in 157 areas

Dam for electrical power backs up a lake 22 miles long, with 180 miles of shoreline.



covering approximately 1,300,000 acres for fish and wildlife purposes. These are largely covered by water or subject to flooding.

In 1967 the Corps of Engineers instituted an annual award for conservation of natural beauty in conjunction with construction of water resource and military projects. In 1967 it also issued a regulation requiring the consideration of esthetic values in all Corps water development projects. The policy calls for the Corps of Engineers to recommend developments only when convinced that the sum of the prospective economic and esthetic gains would exceed the sum of the economic costs and esthetic losses. When the Corps concludes that the national interest requires development, provisions will be made for minimizing adverse effects on natural beauty. (See page 234.)

Between July 1, 1965 and June 30, 1966, 49,807 small storage reservoirs were built on private land with cost-sharing under the Agricultural Conservation Program of the Agricultural Stabilization and Conservation Service. Built primarily for livestock or water supply, many of these reservoirs also provide farmland beauty.

Small lakes can collect so much silt and effluent that they fill up or become otherwise unusable.

OUR DISAPPEARING LAKES

America's 100,000 natural lakes deserve special attention because many of them are losing their recreational and natural values to filling and peripheral development and eutrophication—rapid growth and decay of obnoxious water plants and organisms caused by the prevalence of plant nutrients and other pollution, including sedimentation. In addition, these lakes are increasingly being adversely affected by untreated or inadequately treated municipal, agricultural, and industrial wastes.

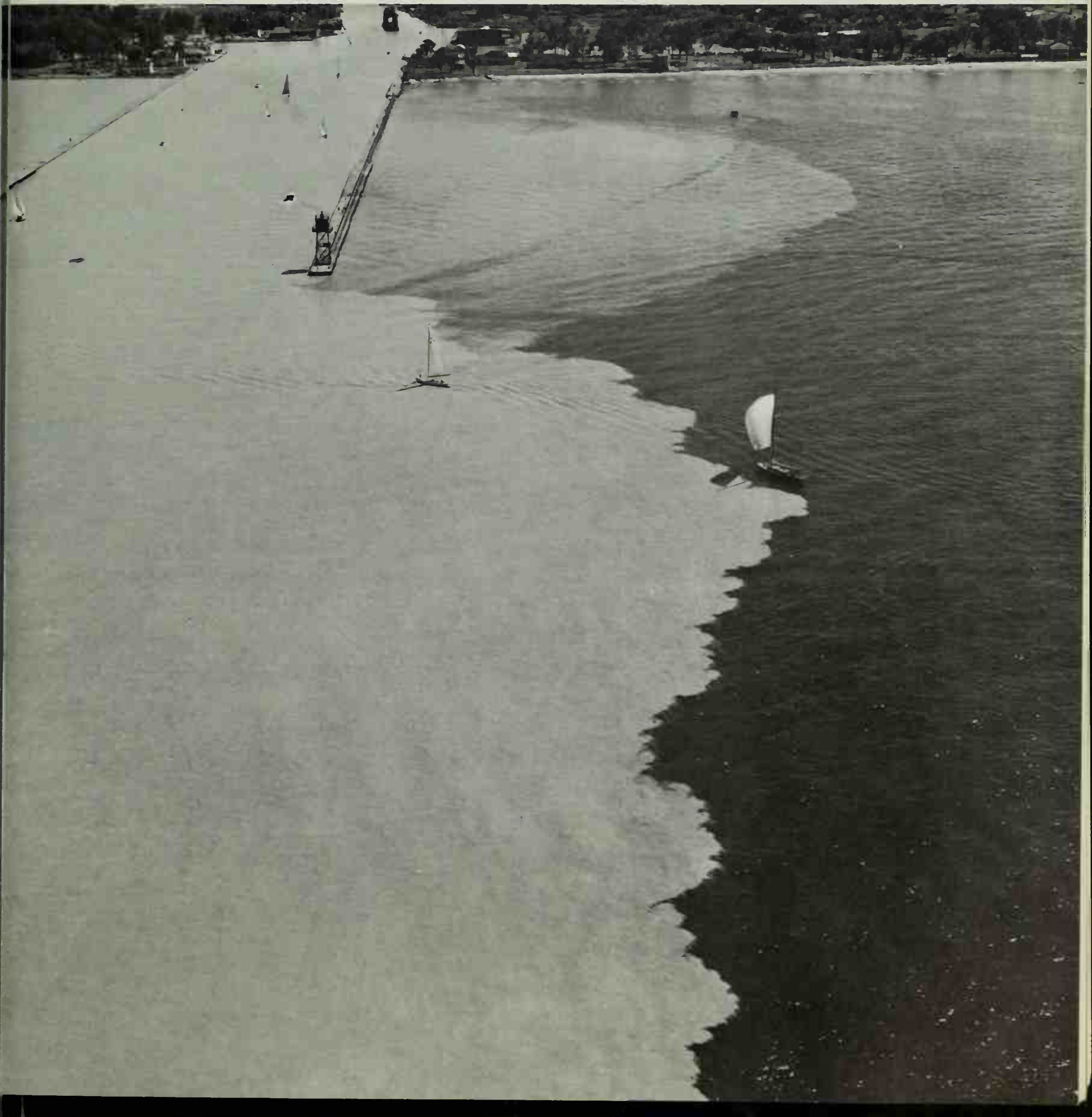
Solution of the latter lake problem calls for water quality standards which lower the current nutrient levels in land runoffs or stream inflows. More research is needed, too. Ways need to be found to dissipate existing high levels of nutrients, and in effect reverse the natural "aging" or filling process experienced by all lakes.

Programs of the Federal, State, local, and even Canadian governments are all concerned. A coordinated effort is needed to preserve many of the natural lakes now becoming unusable.

Lake Erie best typifies the current problems in preserving fresh water lakes. All lakes age physically, chemically, and biologically, but the addition of industrial and human wastes speeds the process. Never before, however, has a lake the size of Erie, with its 10,000 square miles of surface, presented such a dramatic spectacle of premature filling and biological death. Millions of tons of silt enter Lake Erie each year. Chemical buildup, especially from nitrogen and phosphorus, show great increases. These chemicals originate from industrial, human, and farm animal wastes, and from some fertilized farmland. As a result, during the summer in recent years rapid growth of water plants and their decay have resulted in severe oxygen depletion, especially in the western and central sections of the lake.

The biological consequences of Lake Erie's pollution

Even the vast waters of the Great Lakes—"the third ocean"—are threatened.



are spectacular. The white fish, cisco, and blue pike have all but vanished. Insects like the mayfly nymph have decreased to one-tenth their former numbers. Other species of life not dependent upon rich oxygen supplies have increased markedly.

Under leadership of the Federal Water Pollution Control Administration of the Department of the Interior, public and private groups concerned about Lake Erie are working to:

- Give municipal wastes discharged into the lake a secondary biological treatment which reduces the demands for oxygen;
- Drastically minimize the phosphate levels in effluent wastes;
- Increase capacities and efficiencies of waste treatment plants;
- Protect all beaches from refuse and litter;
- Eliminate all toxic and detrimental industrial wastes.

Even with achievement of these goals, other problems will remain. Dredging will be necessary to clear silt deposits from streams, lakes, and harbors. Money is needed. If the objectives are to be realized, the Federal Government must provide substantial and dependable amounts of money from year to year. Also, the economic impact of pollution control needs to be fully understood. The costs of waste control eventually end up in the prices of products. The economic and social costs of failure to control wastes may be even more expensive, sometimes immediately, sometimes over a longer period.

The Council proposes that (1) *Federal agencies expand and coordinate with the States their efforts to protect and restore the scenic and recreational values of natural and artificial lakes by developing and applying improved methods of controlling sewage, siltation, and other pollution, and* (2) *attention be focused on preserving a portion of the remaining natural shoreline of lakes from residential and industrial development.*

WETLANDS AND ESTUARIES

The Nation's wetlands include small prairie "potholes" in the Midwest, flooded river bottomlands and swamps, and expansive salt marshlands with adjoining tidal river estuaries. Often wetlands are the location of municipal, residential, commercial, or agricultural developments.

Wetlands and estuaries serve many purposes. They provide environment for fish, shellfish, and animals; millions of migrating birds use wetlands for way stations. Wetlands and estuaries provide buffer strips between the sea and the land, absorb the runoff and violence of storms, and serve as a "bank" for nutrients from fresh water drainage. The combination of water and wetland, sometimes interspersed with stands of trees, affords a distinctive form of natural beauty.

Vegetation in natural marshes provides habitat for waterfowl.

Estuaries, those areas where salt and fresh waters meet, support unique biological communities, plants and fish and wildlife.

The Nation's wetlands are disappearing. The original 127 million acres present during early settlement has shrunk to less than 75 million, and losses continue. Between 1959 and 1966 in North Dakota, South Dakota, and Minnesota, an average of nearly 138,000 acres of wetlands a year were drained for agricultural purposes. Along the North Atlantic Coast, from Maine to Delaware, about 45,000 acres of coastal wetlands were filled or drained in the 10-year period 1954–1963.

The draining of wetlands can seriously change the hydrology of a drainage area. It can adversely affect community water supplies. It can create flood hazards. It can reduce dry-weather flows, which in turn aggravate the pollutional effects of effluents.

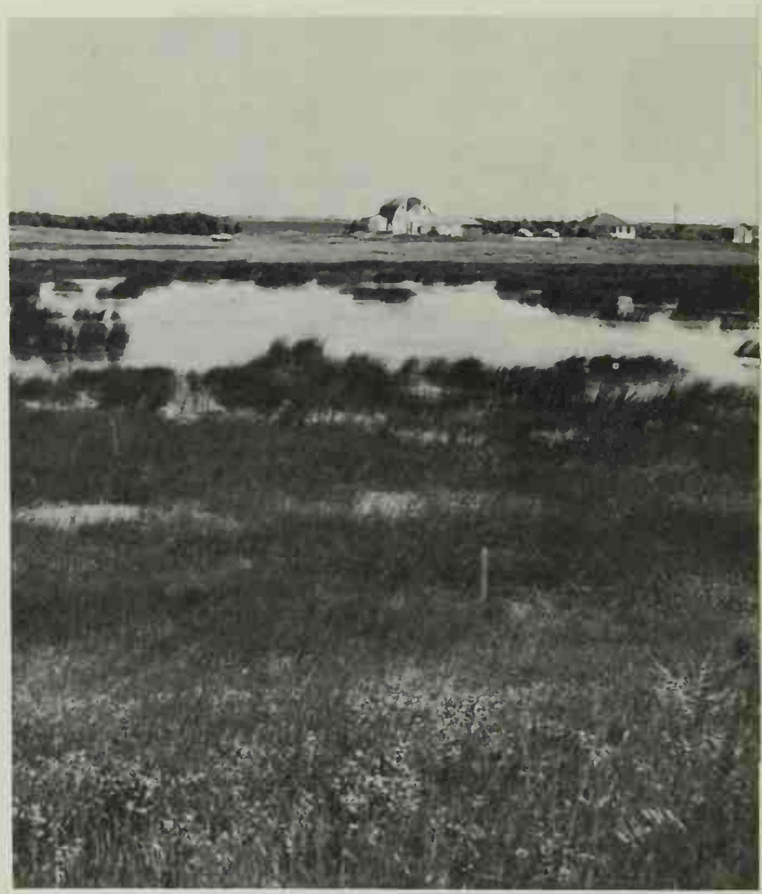
Much wetland destruction is brought about by sedimentation and by filling with dredging material from estuarine bottoms. Dredging not only destroys habitat for shellfish and other animals but also creates silt which drifts far beyond the work area and smothers much aquatic life. Dredging work in navigable waters requires a permit from the U.S. Army Corps of Engineers.

Coastal wetlands and estuaries are increasingly fouled by oil products, fluids, and other substances lost or dumped by ocean-going vessels. The pollution of Cape Cod's coastline in 1967 from a lost load of oil focused attention on the United States' vulnerability to such disasters. The President, in 1967, assigned to the Secretaries of the Interior and Transportation the task of determining how best to meet this problem. Legislation designed to meet the problem is before the Congress.

Substantial wetlands areas, kept in or near their nat-

Dike creates 25 acre marsh as part of a State Wetlands Program.

Deep fresh marsh preserved on the farm provides wildlife area particularly for ducks and other migratory waterfowl, and muskrats. Row of trees planted in background as windbreak also provides food and shelter for wildlife.



ural state, are needed to protect the balance of nature. Ultimately, the Nation will have to determine how much wetland must be preserved, identify the areas which can best satisfy the needs, and provide for their permanent protection. In the meantime, the States can end needless destruction of wetlands and make sure that any conversion of wetland areas is carefully regulated.

There have been many recent actions to protect wetlands and estuaries:

- A 1965 amendment to New York State's Long Island Wetlands Act authorizes State financial and technical assistance to local governments in preserving publicly owned wetlands;
- A 1966 Massachusetts law requires that the Department of Natural Resources approve any filling or dredging of coastal or fresh water marshes—regardless of ownership, whether public or private;
- In 1965, Rhode Island established a system for coastal wetlands zoning;
- In 1965 and 1966 the States purchased 55,059 acres of wetlands through the Federal-aid in Wildlife Restoration Act;
- In 1967, Maine began requiring permits for wetland alteration. The law provides permit-denial powers to municipal officers, county commissioners, and a State Wetlands Control Board, composed of State officials representing fish and wildlife, water, highway, and forest agencies;
- In the 1966 Clean Water Restoration Act, the Congress requested the Secretary of the Interior to make a comprehensive study of the effects of pollution on the Nation's estuaries. This study is being conducted in cooperation with the Secretary of the Army, Secretary of Agriculture, the Water Resources Council, and other Federal agencies. State and local governments and private interests also are participating and their responsibilities will be delineated. The report will include analysis of the economic and social importance of estuaries and recommendations for a comprehensive national program to study, preserve, and develop them.
- In 1967, the Secretary of the Army and the Secretary of the Interior signed a memorandum of agreement under which field representatives of the two Departments will agree on procedures to protect natural resource and recreational values prior to the issuance of Corps of Engineers permits for dredging or other work in navigable waters. The principal areas of concern are inland waters and nearly 8 million acres of coastal wetlands and estuaries—prime habitat of fish and wildlife.
- The Congress is considering legislation to authorize a Department of the Interior study, in cooperation with

the States, to inventory and review the Nation's estuaries and related resources, with a view to recommending acquisition, regulation, or other action to protect their natural resources and values, including "environmental natural beauty." The bill also would require Federal agencies to consider these natural resources when planning development projects, and the Secretary of the Interior to review plans and reports for each proposed Federal development project affecting estuaries. Recommendations to the Congress for authorization of such projects would be required to include a report by the Secretary of the Interior on effects of the proposed project upon estuarine resources, together with recommendations. The Secretary now makes such reports only in regard to fish and wildlife resources.

- In Minnesota, since 1965, the Red Lake Band of Chippewa Indians stopped the drainage of 12,000 acres of marshland on their reservation. Now this land produces waterfowl, fur bearers, and wild rice.

Public recognition of wetland values is expanding rapidly. Each of the annual Agricultural Appropriation Acts since 1962 has prohibited use of Federal Agricultural Conservation Program funds to drain certain small wetlands of value to wildlife. In 1965 and 1966, the Bureau of Sport Fisheries and Wildlife protected through purchase of both full titles and easements over 529,000 acres of wetlands.

SAN FRANCISCO TRIES TO SAVE ITS BAY

The history of San Francisco Bay is typical of many estuaries. It has changed from a relatively clean and clear body of water to one with heavy sedimentation and pollution in only 100 years. But there the similarity to many other estuaries stops; Bay area citizens have acted to stop the destruction. Their efforts have led to the creation by the California Legislature, of a San Francisco Bay Conservation and Development Commission which is now shaping the future of the bay and its shoreline.

San Francisco Bay is changing:

- In 1850, the Bay covered 680 square miles, today it is little more than 400. If the remaining shallow waters of the Bay are filled, only 187 square miles would remain.
- In 1850, Bay wetlands totaled 300 square miles, today there are only 75 square miles left.
- The Bay shoreline totals some 275 miles, but only about 10 miles remain open for public access to the water.
- Hit-and-miss development scars the shoreline; land fills and garbage dumps spread over large areas.

To concerned citizens, the loss of San Francisco Bay was unthinkable. Thousands of Bay Area residents joined the Save San Francisco Bay Association. They awakened the general public to the fact that the beauty and utility of San Francisco Bay were threatened. Public and private interest in "our Bay" grew until a San Francisco Bay Study Commission was formed in 1964. During the 1965 session of California's Legislature the commission's report was embodied in a bill and passed. This established the unique San Francisco Bay Conservation and Development Commission. Its 27 members represent Federal, State, and local governments, the public at large, and the Legislature. An 18-member advisory committee includes representatives of many interest groups.

By January 1969, the Commission is to recommend a comprehensive plan for the development and conservation of San Francisco Bay. In the meantime it has power to issue or deny permits to fill or excavate in the Bay. It is also completing 23 studies to guide future development. Never before has a region in the Nation attempted to formulate such a comprehensive plan of action to preserve a major estuarine area.

CITIZEN ACTION AT ROOKERY BAY

In 1964, southwestern Florida was undergoing change. Its land, islands, and waters, were being transformed into housing and industrial development; birds and fish

Birds find suitable habitat and protection in Florida bay.

were being driven from their habitats; and natural treasures were being bulldozed into oblivion—and with them a way of life dear to the hearts of many residents and tourists.

How to preserve these valuable areas? A group of people with a variety of interests met in Naples, Fla., to discuss the overall problem—and the Collier County Conservancy was born.

The organization determined that saving the vital estuarine areas of Rookery Bay and Henderson Creek required establishment of a permanent sanctuary.

Over a three-month period, with the Collier County Conservancy exercising leadership, options to purchase approximately 2,600 acres of land and islands were signed. More than 1,400 people raised nearly $300,000 with the cooperation of The Nature Conservancy and the National Audubon Society. The latter will administer the sanctuary, now available to all who come to study and enjoy.

The Council recognizes the public interest in estuaries and inland wetlands because of their outstanding scenic, fish and wildlife habitat, economic, recreation, and other values, and recommends that the States which have not already done so establish systematic review procedures for thorough consideration by natural resource and recreation agencies of the values of wetland and estuarine resources before private or public development projects are allowed to encroach upon them.

Easements that permit access to shorelines in private ownership could allow more people to enjoy unspoiled beaches.

SHORELINES AND ISLANDS

The encounter between man and sea offers one of the most rewarding of all human experiences. Standing at the edge of the continent, confronting the ocean, each man may be his own Ulysses or Balboa.

The edge of the sea has special meanings for the beachcomber who walks the tideline, watching for the flotsam; for the bather who absorbs the sun's relaxing warmth; for the surfer who pits his skill against the white charging combers; for the skindiver who explores unearthly undersea beauty.

Similar experiences may be found along the shorelines of the larger lakes, including stretches along the Great Lakes where wind and water have created towering dunes and cliffs in the millenia since the great glaciers scooped out these hollows at midcontinent.

Natural islands, whether surrounded by fresh or salt water, offer in addition a special sense of detachment, a memorable apartness from the pressures and routine of everyday living.

Unfortunately, opportunities to know and enjoy shorelines and islands are steadily diminishing. Natural shorelines increasingly are being fenced, bulldozed, paved, and built upon. Increasingly, scenic stretches of tidelands, beaches, dunes, and seacliffs are covered with shacks and chalets, hamburger emporiums and parking lots, highways and billboards, powerplants and even oil derricks.

It is time to proclaim the principle that all Americans—of present and future generations—have a right to enjoy the shoreline experience, and that ocean and lake shoreline with high-quality scenic and recreation values are natural resources to be conserved and not destroyed.

Instead of ribbon development sprawling along the water's edge, shoreline conservation calls for concentration of commercial and residential development in

Islands are a national resource of great potential, and their protection requires the attention of concerned public officials and private citizens in joint cooperative efforts.

limited areas. It requires both Jones Beaches for mass use in metropolitan areas and Olympic Peninsula Beaches for enjoyment of pristine coasts. It requires that large sections of each type of shoreline be retained in their natural state—the headlands and coves of New England; the flat expanses of sand and salt marsh along the Southeastern coastal plain; the dunes and cliffs of the Great Lakes; the sand dunes, estuaries, and seacliffs of the Pacific Coast; and the varied shorelines of islands from the Washington San Juans to the Florida Keys, from Maine's spruce-covered rock isles to the Channel Islands of southern California and the lava cones of Hawaii.

As each shoreline is different, each also is a part of an interrelated natural system; change in one part affects other parts. Thus, many shoreline problems are interstate problems. Those in Chesapeake Bay or Long Island Sound, for example, require interstate action and coordination. Today, however, unless acquired for public use by some level of government, shoreline protection depends primarily on use of State and local government authority to control land use. There is not effective use of this authority along shorelines in most States at this time.

Despite this, the Nation is showing steadily increasing awareness of the many values concentrated along its coastal strips.

- In 1934, a National Park Service survey identified those reaches of undeveloped ocean shoreline with highest value for public recreation and recommended State or Federal acquisition. But few areas were acquired by the States. And into the 1950's the National Park System included only one National Seashore, at Cape Hatteras, N.C.
- During the 1950's the National Park Service again inventoried significant remaining undeveloped stretches of Atlantic, Gulf, Pacific, and Great Lakes shoreline with high recreation and scenic value. These studies showed that many of the best opportunities identified

One of the problems in administering shoreline recreation areas is the threat of overuse destroying the natural quality of the area.

20 years before were already lost, and provided a solid basis for a "save-our-shorelines" program.

- In 1962, the Outdoor Recreation Resources Review Commission reported that of some 60,000 miles of ocean and Great Lakes shoreline in the 48 contiguous States, about a third was particularly well suited for public recreation and scenic enjoyment. Of these recreation shorelines, the Commission estimated that only 1,209 miles—2 percent of the total—was in public ownership for recreation use. It called on State and Federal agencies to act promptly to preserve for public use the remaining magnificent stretches of unspoiled coastline. "The need is critical," the Commission said, "Opportunity to place these areas in public ownership is fading each year as other uses encroach." The amount acquired for public recreation use since 1962 is not known, but it can be conservatively estimated in 1968 that less than 5 percent is in public ownership for recreational purposes. This includes eight new National Seashores or Lakeshores added to the national estate since 1961: Cape Cod, Mass., Point Reyes, Calif., Padre Island, Tex., Fire Island, N.Y., Indiana Dunes, Ind., Assateague Island in Maryland and Virginia, Pictured Rocks in Michigan, and Cape Lookout in North Carolina.

- In 1963, the U.S. Study Commission, Southeast River Basins, recommended protection of all coastline recreational values and the public acquisition of four of five large islands off the coast of South Carolina and Georgia for recreational purposes.

- In 1965, the White House Conference on Natural Beauty recommended that public or private protection be extended to all remaining natural shorelines.

Recent actions include:

- In 1965, Connecticut's statewide outdoor recreation plan called for investment of $7.8 million for a five-year program of coastline acquisition.

- In 1966, Wisconsin's Legislature provided for mandatory zoning of lands fronting on rivers and lakes, to preserve beauty and ecological values and prevent water pollution; the State Department of Resource Development was directed to help counties draw up shoreline zoning ordinances, and to adopt State zoning where counties do not adopt effective controls. In Maine, at a

symposium on the future of the State's coastline, a coastal preservation system of interrelated scenic and recreation areas was proposed.

- In 1966, the President directed the Secretary of the Interior to inventory American inland and offshore islands, to suggest principles for island conservation, and to propose by 1969 action recommendations for conserving island resources with highest natural, scenic, and recreational values. The Bureau of Outdoor Recreation is conducting this study in cooperation with other Federal agencies and the States.
- In 1966, in the Marine Resources and Engineering Development Act, the Congress called for development of a comprehensive, long-range, and coordinated national program in marine science. The Act established the National Council on Marine Resources and Engineering Development, and an advisory Commission on Marine Science, Engineering, and Resources. The Council has established a committee on multiple uses of ocean shoreline, but is not authorized to exercise continuing coordination of an overall coastal shoreline protection program.

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- In 1967, California's Legislature established a State Advisory Commission on Marine and Coastal Resources to define the public interest in the coastline and to recommend legislation to protect it. Oregon's Legislature recognized public rights to ocean shores between high and low tide. Michigan began inventorying its Great Lakes shoreline and islands. Washington authorized a State Seashore Conservation Area along the State's coastline.
- In 1967, Federal-interstate river basin commissions were established to plan and coordinate planning for water resources and "related land resources" in three regions with ocean and Great Lakes shoreline: The Pacific Northwest, the Great Lakes, and New England. Other such commissions will be established. These com-

missions, established under the aegis of the Water Resources Council, have an opportunity to concern themselves with shorelines—ocean and lake, as well as river. Their effectiveness as vehicles for ocean and lake shoreline preservation will depend in part on whether the individual commissions give this a high priority; their attention may be preempted by problems more directly associated with rivers. To be effective in this field the commissions will have to represent the many public and private interests concerned with protection of shoreline natural beauty and recreation values. Some may decide to set up advisory units and task forces for this purpose. In 1967, the Water Resources Council adopted a policy urging river basin commissions to fully consider shoreline resources and approved the use of funds available under Title III of the Water Resources Planning Act for such planning.

At the Federal level, the Administration has asked the Congress to authorize two new national lakeshores: Sleeping Bear Dunes, Mich., and Apostle Islands, Wis.

Where shoreline conservation is not effective the establishment of special State and interstate shoreline commissions should be considered. Such innovative State-sponsored efforts as the San Francisco Bay Conservation and Development Commission and New York's Hudson River Valley Commission, and such new kinds of Federal-interstate institutions as those being considered to conserve the Hudson and Potomac rivers and their settings may provide new patterns for cooperative action. The feasibility of establishing a national coastal scenic preservation system also should be considered.

The Council urges full consideration of the natural beauty values of ocean and lake shoreline by river basin commissions, and by other Federal, interstate, and State institutions, and urges State and local governments to protect shoreline values through regulation, tax incentives, and purchase.

Regardless of which institutions take the lead, there is an urgent need for up-to-date knowledge upon which comprehensive and systematic efforts can be based.

The federally sponsored nationwide study of islands is scheduled for completion in 1968. And the Congress is considering legislation calling for an inventory and study of the Nation's estuarine resources. (See page 171.)

There also is need for a comprehensive nationwide inventory and survey of the best remaining opportunities for conservation of natural beauty and recreation resources of ocean and lake shoreline—in addition to those directly associated with island and estuarine areas. Such a study would be a logical followup to the National

Industry shares the Great Lakes shoreline with natural areas now being preserved for the recreation use.

Planting dune grass helps to control the erosion of beaches by natural processes.

Park Service inventories of a decade ago; it should determine current status of shoreline preservation efforts, identify conservation opportunities for the various levels of government, and focus renewed public attention on this vanishing resource.

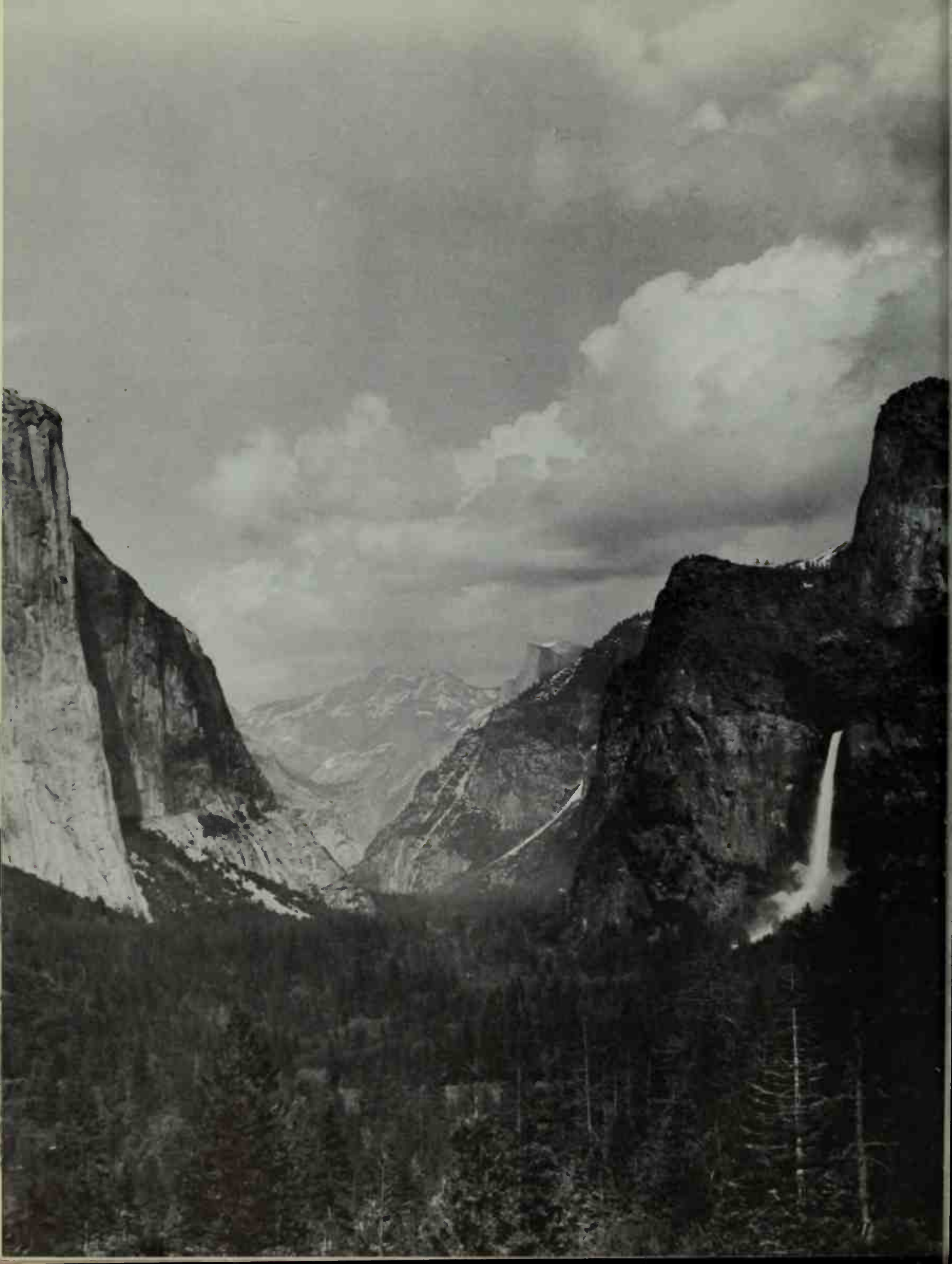
A national shoreline conservation survey would provide an informed basis for action to protect not only the water's edge but the total shoreline setting. It could do this by developing model protective standards for State and local land-use controls, and guides for coordination of planning for public acquisition and appropriate development of critical areas; for coordination of programs of technical and financial assistance through the concerned States; and for technical assistance and incentives to private landowners to conserve remaining natural shoreline environments along lines consistent with today's natural beauty goals.

The Council recommends that increased public and private efforts be made to develop comprehensive plans and balanced programs for use of the Nation's ocean and lake shorelines, islands, estuaries, and adjoining wetlands that include appropriate provision for protection and enhancement of their natural, scenic, recreation, and economic values through:

(1) *full consideration of shoreline problems and potentials in comprehensive studies by appropriate governmental institutions with responsibilities for planning for shoreline resources;*

(2) *State, county, and local zoning or other land use regulation; and*

(3) *establishment of State or interstate management commissions, where appropriate.*



Recreation and Wild Lands

BEYOND THE COUNTRYSIDE lie the lands largely uninhabited or undisturbed by man. These remote mountains, forests, and deserts include the remnants of primeval America.

Here, the more expansive forest and park lands offer opportunities for memorable outdoor experiences in surroundings of superlative natural beauty.

But here, too, population growth and technological change are combining to destroy these opportunities.

PARKS AND RECREATION AREAS

The Federal lands available for outdoor recreation use are located predominantly in the West. The more populous East and Midwest depend heavily upon State and locally owned park and forest areas for outdoor recreation. Many of these areas originally were donated or purchased from private holdings to protect some significant feature rather than to afford recreation opportunities. Normally small, and often scattered and remote from the centers of population, these lands can meet but part of the public need for outdoor recreation. In the eastern portion of the Nation, various Federal projects, such as water resources developments, are now meeting some of this outdoor recreation demand. However, their capabilities are limited in this aspect.

Overcrowding and overuse on park, forest, and other recreation lands pose a serious problem. People are thronging to many outstanding scenic areas in ever-increasing numbers. In doing this, they threaten the very purposes for which the lands are managed. On summer weekends, the floor of Yosemite Valley normally is jammed with as many as 50,000 people. In Yellowstone National Park (Wyoming), and in the Angeles (California) and Wasatch (Utah) or Arapaho (Colorado) National Forests, traffic congests the roads, and frustrated fishermen struggle to find a place in line on the lakes. Many State parks and forests face comparable if not greater pressures, and no letup is in sight.

Several alternatives are open to the managers of recreation and wild lands to provide increased public accommodations:

- People can be encouraged to spread out within the present areas—and use the back country.

WHAT ABOUT THE ANIMALS.

- Greater use can be made of all public lands for recreation.
- * Private lands can be better developed for recreation use.
- More land can be placed in public ownership for recreation use.

For most prospective public recreation areas, escalating land prices pose a threat. Between the time establishment of a recreation area is authorized and its actual purchase, often a period of years, prices often skyrocket. On the average, purchase prices of such Federal lands are doubling each 10 years. Some of this rise is due to speculation, based on the added value of land being dedicated for public purposes and on the certainty that eventual public purchase will at the very worst "bail out" the investors. For example, the cost of land acquisition for the Point Reyes National Seashore in California has ballooned from an estimate of $14 million in 1961 to over $57 million in 1967.

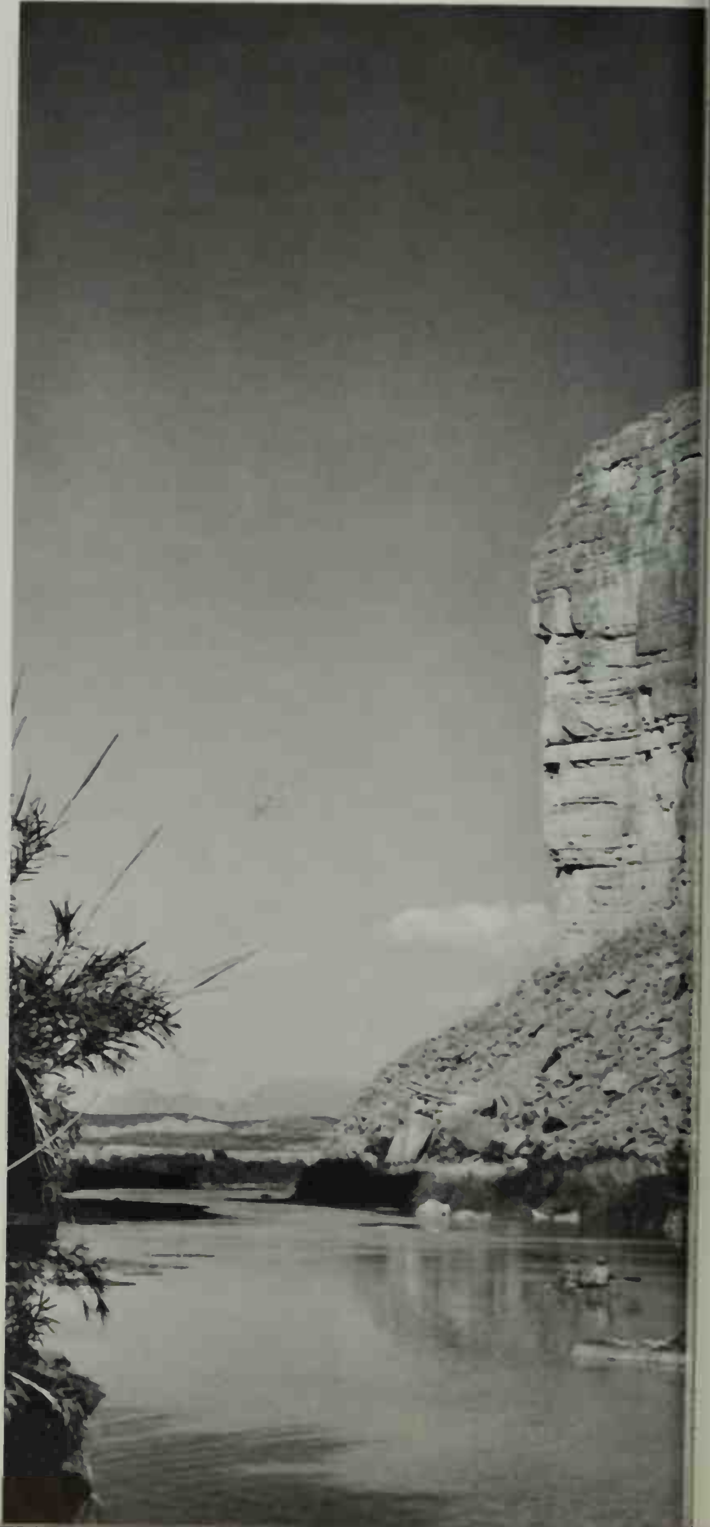
One means of reducing these costs is to acquire promptly all lands authorized for park and other recreation purposes. To help accomplish this, the Federal Government's Land and Water Conservation Fund needs additional sources of income as soon as possible. This Fund finances purchase of most Federal parks and other recreation land and pays half of the cost of many State and local areas. Additional funds also are needed by the Greenspan Program of the Department of Agriculture (see Part I, page 131), and the Open Space Land Program of the Department of Housing and Urban Development (see page 31).

The Council recommends that the Congress expand fund sources for acquisition of scenic and recreation lands under the Land and Water Conservation Fund Program, and make increased appropriations for the Open Space Land Program, and the Greenspan Program.

In addition to meeting much of the Nation's need for conventional outdoor recreation opportunities, properly managed public lands protect outstanding scenic, historic, and wilderness resources. The National Park Service and the Forest Service traditionally have played a principal role in managing and interpreting their areas for visitors from throughout the world. In recent years visitor pressures have expanded and proliferated in so many directions, that it is no longer possible for these two agencies to meet the needs. To meet the demand not only should the Park Service and Forest Service expand their existing capacities but other Federal agencies should be given authority and be encouraged to develop additional recreational facilities and interpretive programs.

The opportunities to take effective action on such programs are indicated by the Bureau of Land Management's dedication of the Red Rock Recreation Lands for recreation and the protection of scenic, natural, and historic values. This 70,000-acre project, some 15 miles west of Las Vegas, Nev., offers attractions to both natural scientists and outdoor enthusiasts.

Multidisciplinary planning is needed for parks and recreation areas. Beginning in 1966, the National Park Service recognized this need by establishing three planning centers across the country. To these centers were assigned not only landscape architects, ecologists, resource managers, and planners but also additional engineers, whose viewpoint often had been found missing. Planning projects were assigned to team captains in the centers and multidisciplinary teams organized around these captains based on the nature of the problem.



The Rio Grande borders the Nation and its southernmost National Park at Big Bend in Texas.

Bryce Canyon in Utah, along with National Parks and other preserved areas countrywide, offers fields for study as well as enjoyment to scientists and students, photographers and tourists.

Greater recreational use of Federal lands, now comprising one-third of the Nation's area, is receiving increased attention. Some Federal agencies now provide recreational opportunities on lands they administer. More Federal agencies could do the same, even though their lands are suitable only for intermittent recreational use by the public because of their primary need for military or other activities. Although some Federal lands disposed of as surplus to Federal needs offer tremendous recreational opportunities, existing disposal procedures do not always result in the transfer of such lands for a use giving the greatest public benefit.

The potential for better use of surplus Federal property for public recreation was emphasized by President Johnson in 1965 in addressing the White House Conference on Natural Beauty. He again stressed the importance of preserving the natural beauty and public use possibilities of these lands when he established the President's Council on Recreation and Natural Beauty. In response, the Council has in preparation a report to the President which (1) evaluates the recreation and natural beauty potential of both surplus Federal lands and Federal lands retained primarily for nonrecreational purposes, and (2) reviews and evaluates current legislative authorities, policies, and procedures for disposition of surplus Federal lands.

Overuse of public recreation areas often may be prevented by developing new areas closer to centers of population, by providing better transportation, and by encouraging the private sector to develop visitor accommodations adjacent to the public areas. Coordination of all planning which affects both public and private lands near major recreation centers is needed if the Nation is to expect the orderly development of public recreation facilities and services.

Improved public transportation within national parks and other recreation areas offers alternatives to too many cars and too many roads. What is needed is frequent, safe, comfortable, and convenient public transportation. Specially constructed narrow roadways for electrically driven and rubber-tired trains have proven effective solutions to similar problems on a smaller scale at Colonial Williamsburg and at Disneyland.

In recent years the Nation has seen substantial progress in dealing with the many problems relating to parks and recreation areas.

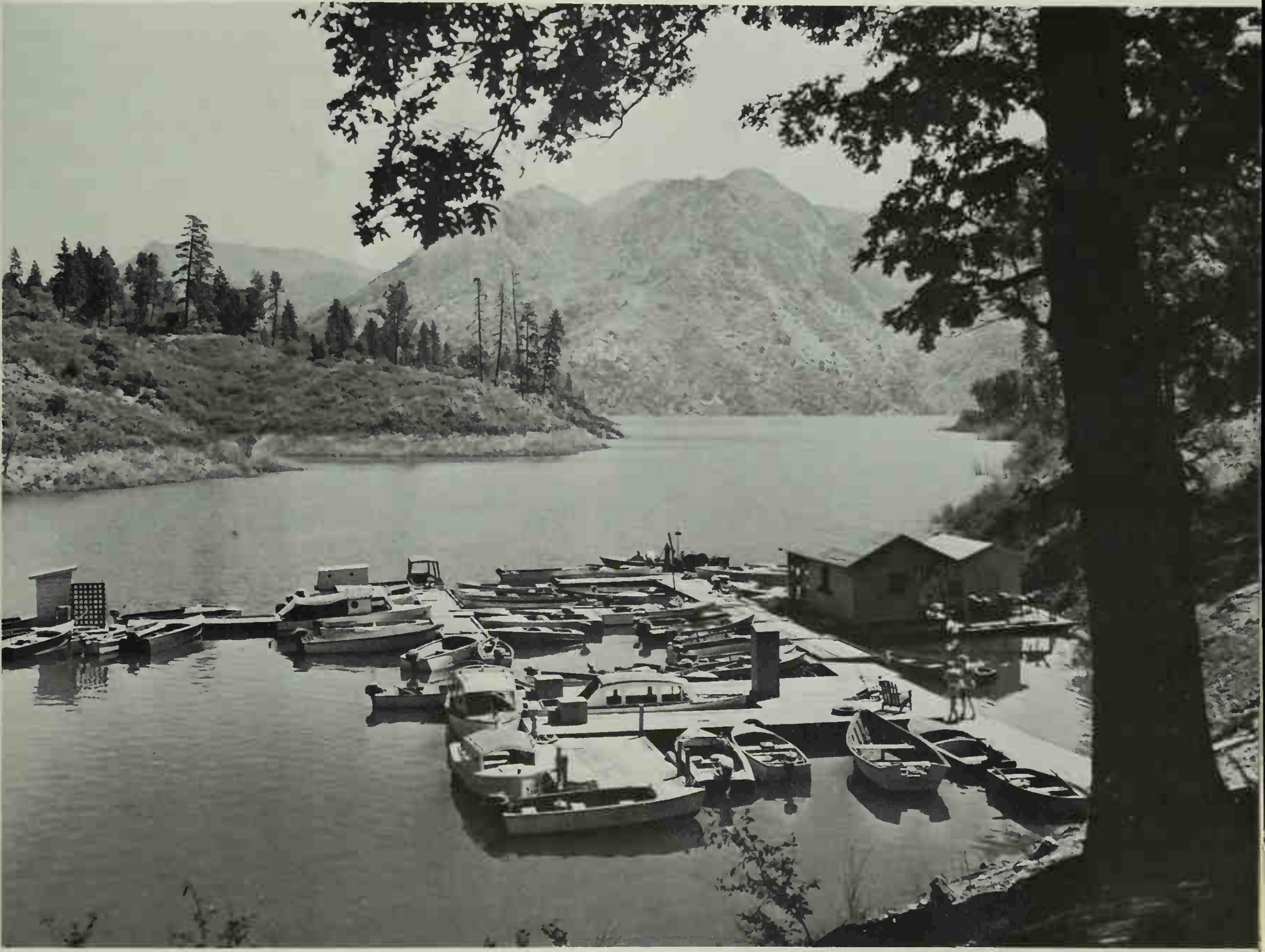
- Since 1965, two new national parks have been established: Canyonlands National Park in Utah, and Guada-

Montana's Bighorn Canyon offers water sports in addition to its spectacular views.

lupe Mountains National Park in Texas. They include outstanding examples of geologic erosion, fossil reefs, and archeological evidence, including prehistoric human inscriptions and pictographs. Administration proposals for other national parks before Congress in 1968 include a Redwoods National Park in California, North Cascades National Park in Washington, and a Potomac Valley Park in Maryland, Virginia, and West Virginia. The national parks attracted nearly 150 million visitors in 1967. This is 14 million more than in 1966 and four times as many as in 1950.

- Under provisions of the Wilderness Act of 1964, nine million acres within the national forests were automatically placed in the National Wilderness Preservation System. Other outstanding areas within the National Park, National Forest, and National Wildlife Refuges systems are being reviewed for possible inclusion in the wilderness system. (*See discussion of Wilderness,* page 196.)
- A new system of National Recreation Areas is being established by Congress under administration of the National Park Service, Forest Service, other Federal agencies, or the States. Areas already established include Lake Mead in Nevada and Arizona, Whiskeytown-Shasta-Trinity in California, Delaware Water Gap in Pennsylvania and New Jersey, Spruce Knob-Seneca Rocks in West Virginia, Mt. Rogers in Virginia, and Bighorn Canyon in Montana. Administration proposals for other recreation areas before Congress in 1968, include Ross Lake National Recreation Area in Washington and Glen Canyon National Recreation Area, in Arizona and Utah. National Lakeshores and National Seashores, previously mentioned, are developed and managed as National Recreation Areas.
- In 1967, the Bureau of Outdoor Recreation began working on two pilot projects in an attempt to improve regional outdoor recreation planning processes: These are in the Denver-Rocky Mountain area in Colorado and Wyoming and in the Connecticut River Basin in New England.

Shasta Reservoir is one of four Federal reclamation impoundments in a National Recreation Area of over 280,000 acres. These areas offer facilities for camping and picnicking as well as all water sports—including skin and scuba diving.

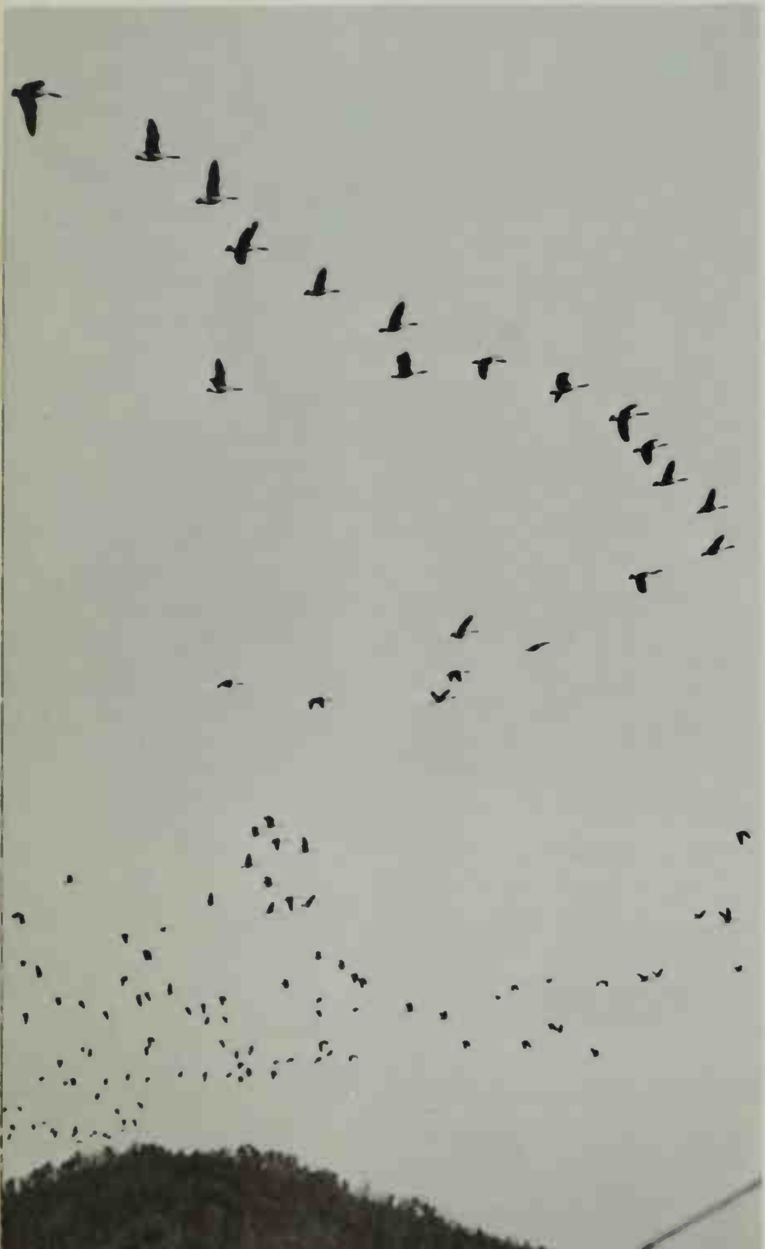


• Improved park and recreation facilities are resulting from the efforts of young men in training at some of the 91 Job Corps Conservation Centers across the Nation. Sponsored by the Office of Economic Opportunity and administered through several other Federal agencies, these centers combine elementary schooling with on-the-job training. Near Poplar Bluff, Mo., the Job Corpsmen combine their schooling and training while developing a $750,000 recreation area at Markham Springs on the Black River. Included are 100 picnic areas, 62 camping sites, boat ramps, and an information center and museum.

THE LAND BETWEEN THE LAKES

The Tennessee Valley Authority is demonstrating how it is possible to restore natural beauty to a misused land-

Wildlife management throughout the 170,000 acres of Land Between the Lakes makes flights of northern geese a common spectacle there.



scape and, at the same time, create diverse opportunities for recreation and nature study. TVA's Land Between the Lakes project in western Kentucky and Tennessee consists of land whose agricultural and timber productivity is marginal or submarginal.

A long narrow isthmus with 300 miles of shoreline, the project lies between Kentucky Lake, a TVA reservoir, and Barkley Lake, a U.S. Army Corps of Engineers' reservoir. The area lies within 500 miles of the homes of approximately one-third of the Nation's population.

The land has suffered from generations of iron production—an industry that consumed vast amounts of timber and stripped ore from the rolling hills. This, followed by years of improper farming, has left it able to support only meager forests and wildlife.

Today, only four years after development began, the natural beauty of the landscape is again apparent. Several miles of eroded roadsides have been revegetated; many more miles will be. Gullied fields have been planted in pine seedlings, acres of woods openings have been provided for wildlife, lakes have been built for migratory ducks and geese, and shoreline is being cleared to provide public access to the water.

TVA also is building a Conservation Education Center. Already, a small outdoor education school center is open; children from the surrounding States come with their teachers to study and learn about the out-of-doors and wise use of natural resources.

- In 1966, Alaska voters approved a $900,000 bond issue for parks and recreation; a $200 million bond issue for park and recreation development was ratified by New York State voters; the Massachusetts Legislature authorized issuance of $5 million in bonds to finance development of outdoor recreation areas; the Mississippi Legislature passed a bond bill authorizing investment of $1 million for State park system development; the North Dakota Park Service was authorized to issue $2 million worth of revenue bonds for improvement of State parks, and Rhode Island voters approved a $5 million bond issue for use by the State's Recreational Building Authority.

- In 1967, Alabama voters approved a $43 million bond issue for State park acquisition and development, and Texas voters approved a $75 million bond issue for the same purposes.

State and local agencies also are accelerating expansion and development of their park systems. In 1967 alone, the States, counties, and cities acquired an estimated 905,000 acres of land for parks, open space, and other recreation areas, according to a survey by the Bureau of Outdoor Recreation. Federal agencies acquired an additional 810,000 acres that same year.

Of primary importance are State bond issues of recent years which are financing improvement of park and recreation systems. Recent actions include:

- In 1965, Maine voters authorized issuance of $10 million in bonds for State guaranteed mortgage loans for privately operated recreational projects. In 1965, also, issuance of $4.5 million in bonds for land acquisition and development at State parks was approved by Kentucky voters.

OLD FAITHFUL GEYSER

Demand for recreation both near and far from home brings people in ever increasing numbers to the out-of-doors.

Because the natural vegetation has not been destroyed or replaced, animals thrive without special protection in habitats provided by National and State Parks, Forests, and other preserves.

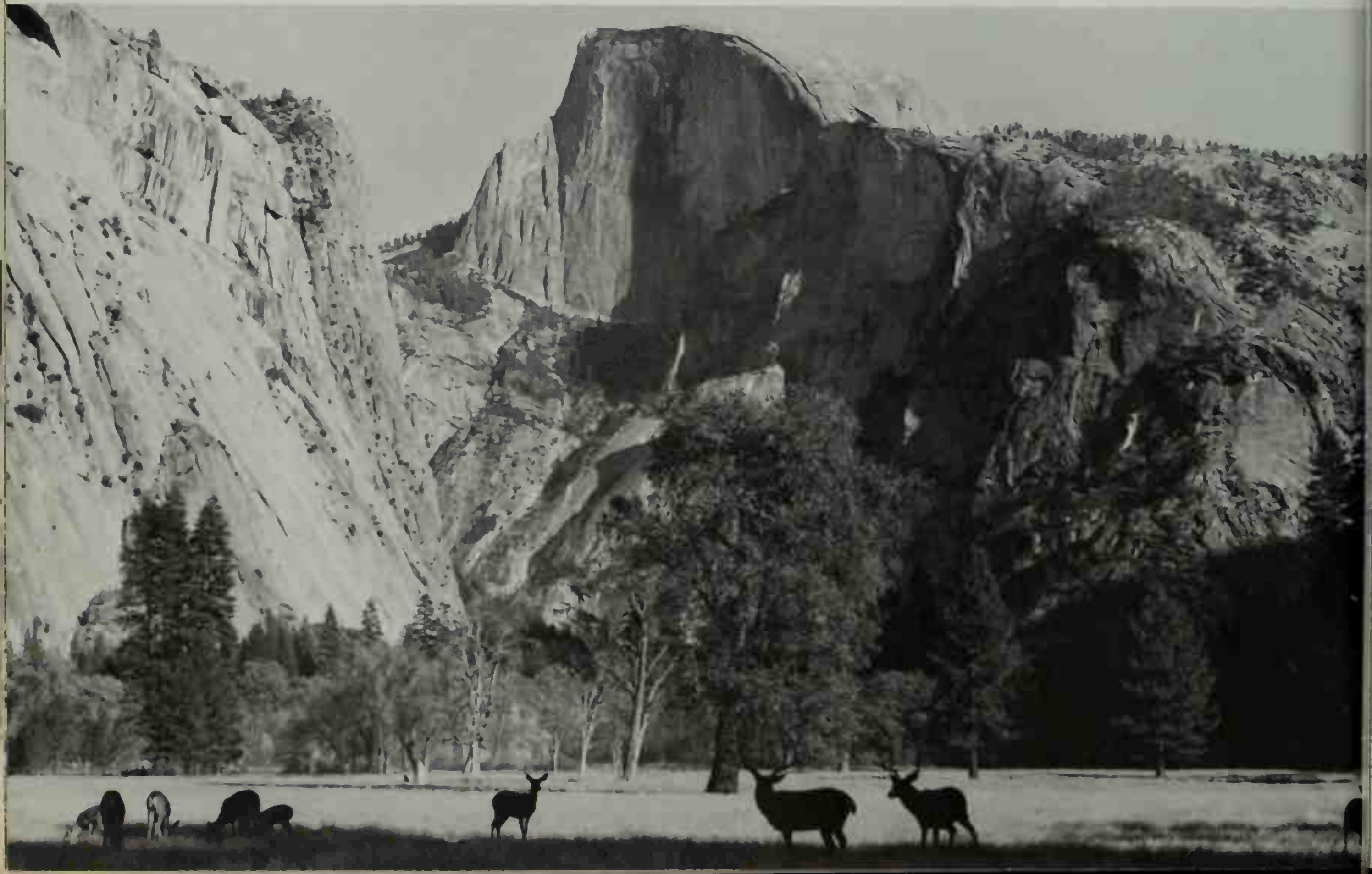
WILDLIFE

The history of man is marked by his close association with animals—both wild and domestic. Wildlife have strong links to the American cultural and recreational heritage. Millions of people enjoy observing the few wildlife species around their homes, and indications are that the role of wildlife is increasingly appreciated. In recent years public concern has increased for those species threatened by extinction.

Contemporary patterns of development constantly decrease opportunities to enjoy wildlife. Housing, highway, and agricultural developments often disturb the fields, woods, and wetlands which provide wildlife habitat. The open spaces and parks that are available are seldom planned to enhance wildlife for the enjoyment of people.

Most of the current effort on behalf of wildlife is expended in rural areas and then generally for those species which are pursued for sport. The hunter's license dollar is spent on game species, even though he may be a "birdwatcher" also; and there are few opportunities for the nonhunter to support public wildlife programs. Little thought is given to man's responsibility for the continued existence of all other species on earth.

Both rural and urban efforts are needed to maintain and increase wildlife. Preservation of species threatened with extinction such as the grizzly bear, California condor, and whooping crane calls for the preservation of particular combinations of widely separated wild



One whooping crane exercises his 7 foot wingspread to protect his territory from invasion by another at the Aransas National Wildlife Refuge, one of the major havens of this near-extinct species.

The grizzly bear is another of the endangered species.

areas of food and cover. The enhancement of game species, which should continue for the benefit of sportsmen, in many instances requires similar conservation efforts.

In urban areas, the prime need is for adequate habitat for desirable and compatible wildlife species so that more people can enjoy observing them. The White House Conference on Natural Beauty recognized this in recommending natural areas within walking distance of city dwellers. Such habitat can be provided in many ways. Home landscaping, park development, nature centers, and the creation of migratory waterfowl resting areas in conjunction with waterfronts, city reservoirs, and the like can attract and maintain wildlife. Persons with professional training in management can serve these ends by working closely with park planners, designers, architects, landscape architects, and community developers to help create opportunities for people to enjoy wildlife.

Wildlife refuges provide special opportunities for people to get acquainted with wildlife. Frequently, such refuges also offer opportunities for hiking, boating, swimming, fishing, and hunting. Wildlife protection is also served by the many forests and parks and other public lands dedicated to nature preservation or resource management.

The Cropland Adjustment Program and Agricultural Conservation Program of the Department of Agriculture make substantial contributions to the preservation and propagation of wildlife in rural areas. Over four million acres of cropland in 48 States have been diverted from the growing crops to a production of protective cover of trees, shrubs or grass—much of which provides habitat for wildlife.

The National Audubon Society's Nature Centers Division has helped more than 300 communities plan nature centers. Through those efforts, some 20,000 acres of land, mostly urban, have been set aside for outdoor education programs.

The Endangered Species Preservation Act of 1966 has

stimulated action on behalf of some 78 threatened varieties of wildlife. The Department of the Interior has established an Endangered Species Research Station at Patuxent Wildlife Research Center in Maryland, published a compilation of data on rare and endangered fish and wildlife of the United States, and placed biologists in the field to work out life histories and ecological requirements of endangered species—not limited to game species.

Some of the States are broadening their wildlife concepts, too. For example, the California Wildlife Plan of 1966 gives broad recognition to the whole spectrum of animals appealing to the public—not game species alone. In 1967, general funds were appropriated for wildlife work in that State for the first time—to supplement revenues from hunting and fishing licenses. Arizona in 1967 hired a trained man to work on the enhancement of all species of wildlife.

The Council recommends that State agencies with responsibilities for wildlife conservation place a share of their emphasis on the maintenance of nongame species, and on the management of desirable species of wildlife in urban areas. Federal agencies should encourage and assist these efforts, exercise greater coordination, and exert more effort to manage and protect wildlife and its habitat particularly that of endangered species.

A sea of ducks covers the surface of a rice field at the Sacramento National Wildlife Refuge.

NATURAL AREAS

Society will benefit if natural environments where natural processes predominate are preserved. Needed primarily to serve research and education needs, natural areas often are places of rare natural beauty. Many of them are small, sufficient only to preserve representative samples of specific plant, animal, geologic, or aquatic processes. Sometimes they are too small or fragile to support extensive use by the general public. Yet, as links between man and nature, as bench marks or scientific laboratories, they can be invaluable.

If of national significance, natural areas qualify for registration and recognition under the Natural Landmarks Program of the National Park Service, regardless of ownership. The National Parks themselves preserve certain natural systems.

Within some States, interested people have joined together to preserve natural areas through local and legislative action. By 1967, some 14 States had enacted either statewide or special area legislation to protect natural areas. Similar action was pending in several other States.

Private organizations like The Nature Conservancy, the National Audubon Society, and the Natural Area Council help save outstanding remnants of particularly outstanding natural areas, in both urban and rural locations. A number of colleges and universities have established areas for research in natural history and ecology. Some natural areas are preserved by concerned individual landowners. Others, like the Lac LaCroix Natural Area within the Boundary Water Canoe Area of Minnesota, have been set aside through cooperative action; in this case, the Forest Service and the Izaak Walton League of America.

In addition to protection provided by the National Parks, as long as 50 years ago, examples of various natural forest species in the National Forests were set aside for preservation. Since then, the Bureau of Land Management, and Bureau of Sport Fisheries and Wildlife, also have given protection to areas containing unique natural features or forms of life.

In 1966, an interagency Federal Committee on Research Natural Areas developed objectives, definitions, a classification system, and minimum criteria for the selection, management, and protection of natural areas on Federal lands. In 1968, the Departments of Agriculture and the Interior jointly published a Directory of Federal Natural Areas. Federal agencies expect to cooperate with State and private groups to identify additional geological and ecological types of natural areas needed for research and education.

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The Council proposes that Federal land-managing agencies accelerate the rounding out of a coordinated nationwide system of natural areas on lands they manage, through designation and through acquisition where authorized, to the extent necessary to meet national research and education needs for such areas.

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ALLISON WOODS AND MURPHEY'S POND

Allison Woods is a story of failure. In Sullivan County, Tenn., a stately forest of oak, hickory, sweetgum, and yellow poplars formed the last unprotected primeval hardwood stand on land in east Tennessee. Local residents long had enjoyed the beauty of Allison Woods, but knew that timber companies wanted to cut the trees for commercial purposes.

In 1965, citizens of Johnson City set up an informal committee for preservation of the woods. Supported by the County Court of Sullivan County, the City Council of Johnson City, and the Junior Chamber of Commerce, they asked the State Department of Conservation to preserve the tract for nature study and recreation use.

At about the same time, the landowners sold the timber, but not the land, to a veneer company. Throughout the succeeding year and a half, discussions were held between representatives of the local public agencies, the Department of Conservation, the National Wildlife

Federation, the American Forestry Association, the Bureau of Outdoor Recreation, the University of Tennessee, and The Nature Conservancy, all of whom desired to save Allison Woods.

The veneer company did not cut the trees during this period, but proposed a deadline in the autumn of 1966, at which time it would either sell the timber rights for several hundred thousand dollars or harvest the timber. The project to save the trees failed when the deadline was reached. None of the concerned agencies individually could meet the price. Throughout their discussions they were unable to find a way to pool their resources. Compounding the problem was the attitude of the two owners of the land on which the trees grew. Both refused to sell their land to a public agency. Able to buy only timber rights, the State Department of Conservation could not obtain Federal grants, available only when full title to the land is acquired. The requirement for full title purchase is intended to insure suitable public access and other amenities at areas purchased.

Allison Woods lives now only in the memory of people who knew and loved the area.

MURPHEY'S POND

Murphey's Pond is a story of success. In the western part of Kentucky, this pond area supports an outstanding primeval cypress swamp which harbors a rich variety of wildlife—beaver, raccoon, mink, a heron and egret rookery, and a great variety of amphibian and reptile life. Within it also stand some 20 acres of virgin cypress. Colleges in Kentucky and surrounding States have used Murphey's Pond for scientific research and field study for many years.

Scientists who visited the swamp on field trips became increasingly concerned about its preservation. The State park and wildlife agencies proved unable to help them, because the area would not serve general recreation purposes and it was not an outstanding game bird area. The swamp also was too small and too distant from urban centers for most Federal assistance.

The maintenance of special values in unique natural areas, already a major element of Federal preservation programs, is an increasing target of local preservation programs.

Murphey's Pond is one of many natural wetland areas—ponds, swamps, marshes, bogs—saved by private action.

The owners, while sympathetic to the scientists' aims, could not afford to maintain the swamp in its undisturbed natural state. In March 1966, one owner informed the scientists that unless they could arrange to buy his portion of the swamp, he would sell to a lumber company which planned to drain the swamp and cut the giant cypresses for lumber.

A zoologist at the University of Kentucky promptly contacted The Nature Conservancy. This organization was willing to advance the funds to purchase Murphey's Pond if local citizens would repay them by public subscription. By November 1966, the main portion of the swamp had been purchased and a scientific inventory of the plant and animal life was underway. Local citizens promptly organized to pay off the loan.

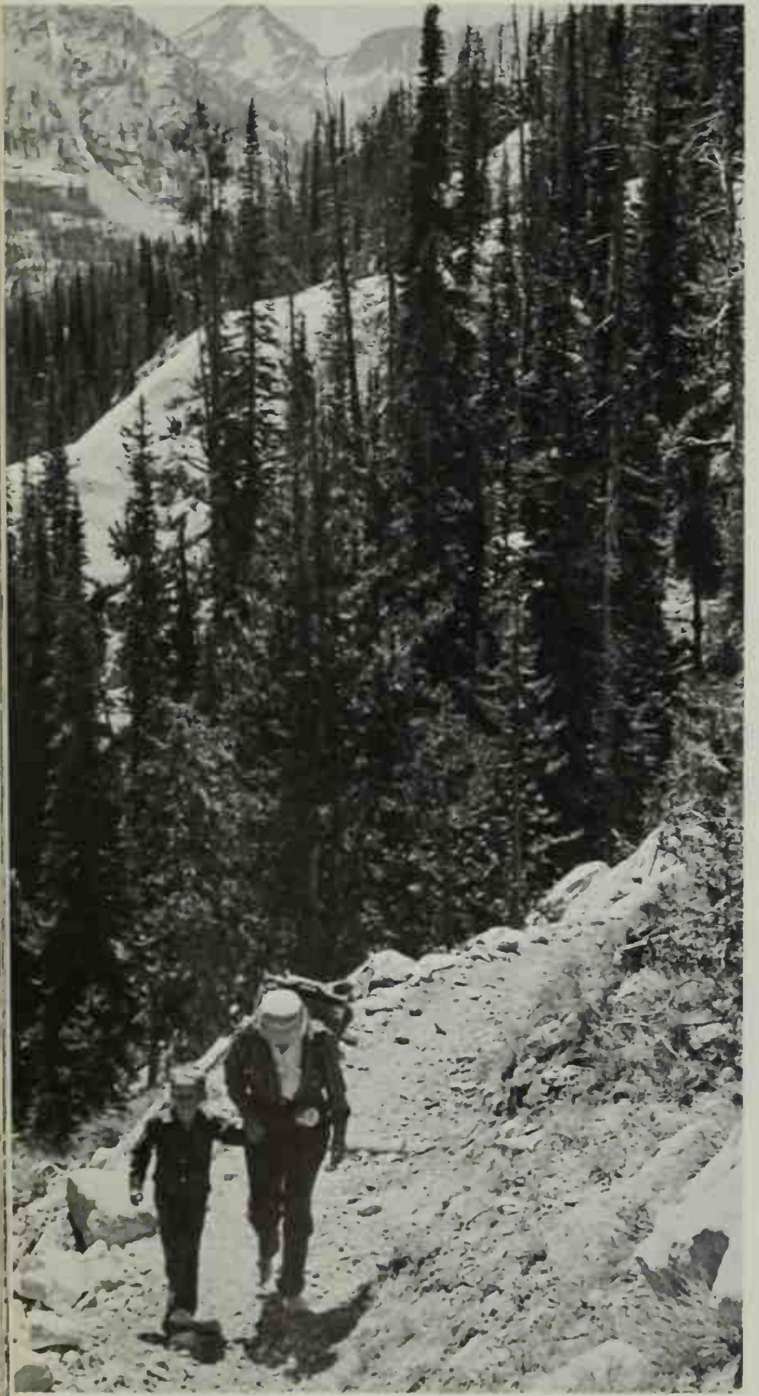
- The difference between success and failure in preserving natural areas often is a case of adequate money being available at the right time.

The Council recommends that:

(a) *those States which have not done so designate, acquire, or otherwise arrange for protection of natural areas as parts of a system representative of each State's natural landscape types and natural vegetation and geologic history.*

(b) *the Federal Government be authorized to provide technical and financial assistance to States, and via the States to educational and research institutions, for the establishment of coordinated statewide natural area systems.*

High mountain trails offer the hiker recreation experiences of rare quality.



TRAILS

Walking, hiking, and bicycling are simple yet rewarding pleasures. Nearly everyone who participates gains healthful exercise and appreciation of the physical environment. Increasing numbers of citizens also ride horseback, and many enjoy using small motorbikes.

People like to walk. Some 77 million persons take pleasure walks each year. Between a 1960 survey of the Outdoor Recreation Resources Review Commission and a 1965 survey by the Bureau of Outdoor Recreation, the number of persons who walk for pleasure increased 58 percent, the number of pleasure walks 71 percent. In 1965, Americans went for nearly 1½ billion walks, a walk being defined as a pleasure stroll of at least 30 minutes' duration.

American society severely restricts opportunities for walking and cycling. City streets and rural highways serve automobiles primarily. Fumes, noise, and traffic make other uses unattractive or even dangerous. Recreation trails for foot travelers, cyclists, and horsemen are inadequate to the demand, even on public lands. All are in woefully short supply in urban areas; few are suitable for the elderly or handicapped.

The National Park System, for example, until 1967 had but 232 miles of bicycle trails, and more than 185 miles of this was on the Chesapeake and Ohio Canal towpath along the Potomac River above Washington, D.C. In 1967, three bicycle trails totaling some 10 additional miles were opened at Cape Cod National Seashore. Many more such trails are planned.

Private trail clubs for more than 40 years have sought to fill the gap. Since 1925, volunteers from 65 member clubs of the Appalachian Trail Conference have built and maintained the 2,000-mile Appalachian Trail across 14 States from Maine to Georgia. Similar efforts have created the Long Trail in Vermont, the Finger Lakes Trail in New York, and many more.

Presidential recognition of the need for trails came in President Johnson's Natural Beauty Message of 1965

A nature trail in an old park deep in a densely urban area allows city dwellers a chance to enjoy nature.

when he called for establishment of a nationwide system of trails.

In 1966, the Bureau of Outdoor Recreation, Department of the Interior, published *Trails for America,* the findings of a two-year study of nationwide trail needs conducted with the Department of Agriculture and other organizations. The report urges systematic development of three basic types of trails through cooperative efforts by all levels of government. It recommends establishment of National Scenic Trails which would provide opportunity for extended outdoor recreation experiences; Federal and State park and forest trails, to lead visitors from their cars to sites of scenic, historic, and cultural interest, and metropolitan area trails, to provide opportunities for walking, cycling, and horseback riding near where most people live.

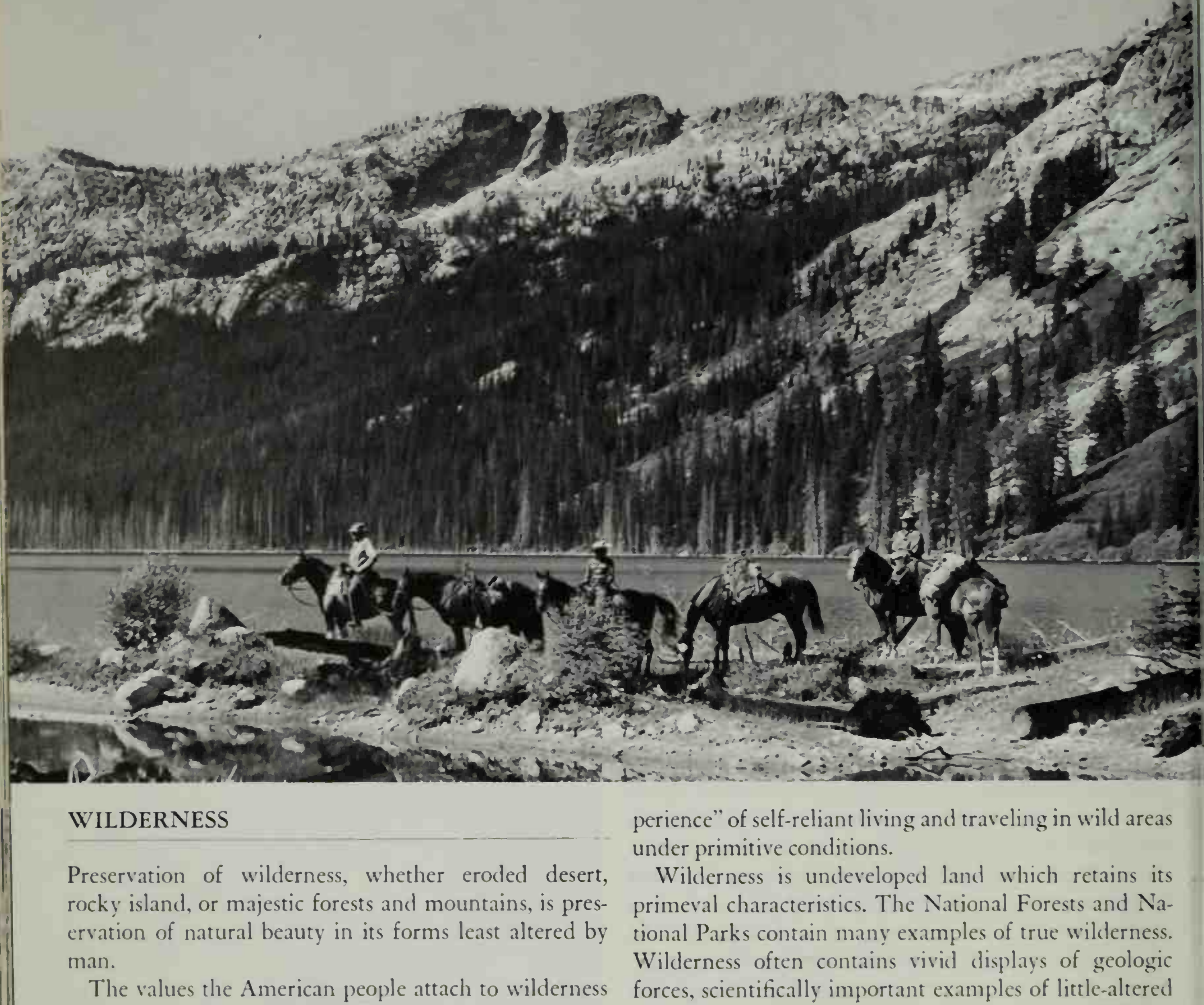
Based upon this report, the Administration proposed to the Congress in 1967 that such a nationwide system of trails be established. The immediate effect of the bill would be to set up a Nationwide System of Trails with four initial units. These would be the Appalachian Trail, following mountain ridges and slopes from Maine to Georgia; the Continental Divide Trail in the Rocky Mountains from the Canadian border to the Mexican border; the Pacific Crest Trail through all the West Coast States, and the Potomac Heritage Trail, extending 825 miles from the mouth to the sources of the Potomac River. Other scenic trails of national significance could be added to the system later, and the development of shorter trails on public lands and adjacent to large cities would be encouraged.

The Council recommends that:

(a) *the Administration's legislation to authorize a nationwide system of trails be enacted, and*

(b) *States and local governments establish and expand statewide and metropolitan area trail systems to complement the proposed nationwide system of trails.*

Historic trails, once transportation routes for a young nation, today attract travelers seeking still visible traces of the Nation's heritage.



WILDERNESS

Preservation of wilderness, whether eroded desert, rocky island, or majestic forests and mountains, is preservation of natural beauty in its forms least altered by man.

The values the American people attach to wilderness have steadily changed from the days when their ancestors first cleared the eastern forests. Wilderness in overwhelming abundance is an entirely different matter from wilderness grown scarce. That which is scarce is valued highly. As wilderness makes its last stand, Americans have come to appreciate the solitude, naturalness, and grandeur of wilderness, and a small but growing minority actively pursue the "wilderness experience" of self-reliant living and traveling in wild areas under primitive conditions.

Wilderness is undeveloped land which retains its primeval characteristics. The National Forests and National Parks contain many examples of true wilderness. Wilderness often contains vivid displays of geologic forces, scientifically important examples of little-altered ecological communities, and high scenic values. Wilderness can, of course, mean different things to different people. To some, wilderness denotes unknown danger. To others, wilderness offers a place of inspiration. As defined by Congress in the Wilderness Act, it is an area "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

The wilderness experience is a great reward for those who pack their food and sleeping gear and venture beyond roads and other evidences of man.

Certain principles apply to wilderness preservation. The physical boundaries of a wilderness area are generally best set on a watershed or other recognizable feature, though artificial boundaries are sometimes necessary to include protection of desirable areas. In general, wilderness areas must be large, since size itself helps reduce the impact of outside intrusion on the total area. However, this does not necessarily preclude the designation of smaller, suitable areas as wilderness under the Wilderness Act or in State or local reservations. For instance, small isolated islands often have important wilderness qualities, irrespective of their size. Archeological and historical remains generally are compatible with wilderness areas, even though they are evidence of the hand of man.

Wilderness areas require unity and integrity largely unaffected by human activity in surrounding areas. However, boundaries of wilderness areas of necessity must sometimes be close to roads and other developments, particularly in the populated East. Public access to Federal wilderness areas, by definition of the 1964 Wilderness Act, is permitted by foot, pack animal, or other nonmotorized means. Scenic vista outlooks and access thresholds located outside of wilderness areas sometimes can provide motorists and nonhikers with a glimpse of wilderness which does not intrude upon the wild setting.

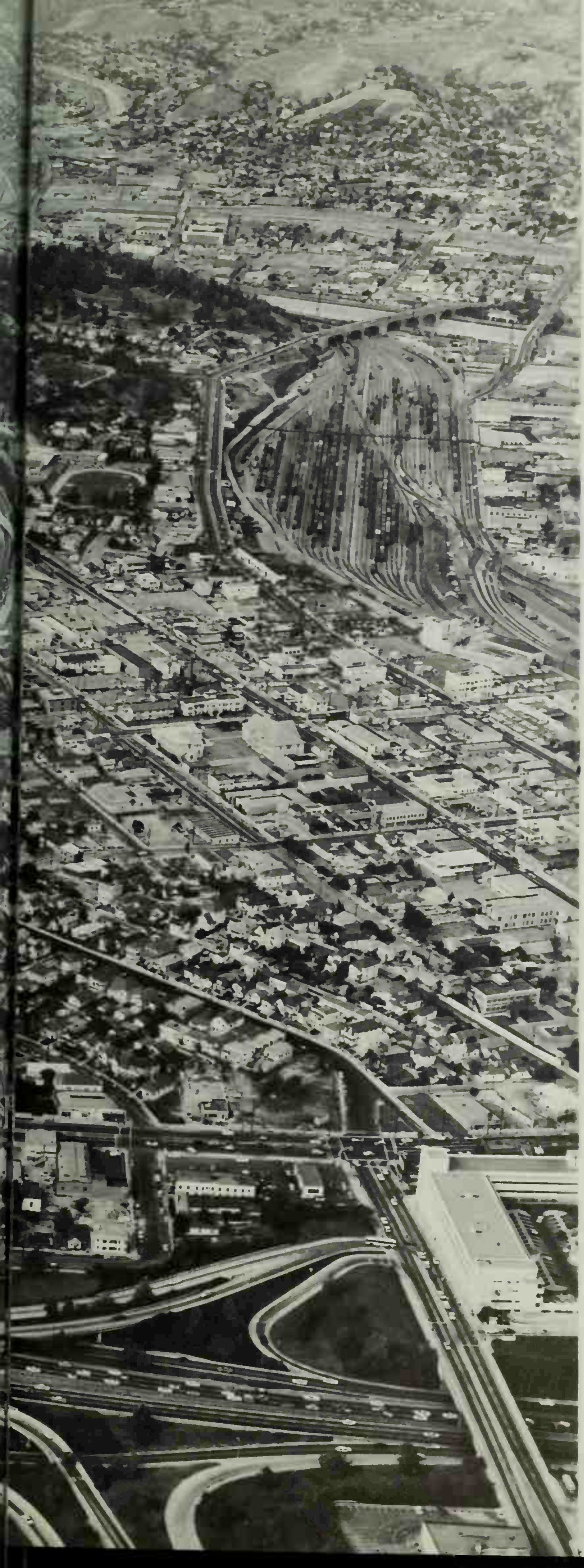
Passage of the Wilderness Act in 1964 capped a long history of effort to earmark and to protect permanently a vestige of American wilderness. These efforts have included Federal action establishing various National Parks, Wilderness, Wild, and Primitive Areas in the National Forest System, and action in various States reserving large and small areas in their natural condition. The Wilderness Act established a unified national policy for the establishment, protection and administration of Wilderness Areas within the National Forest, National Park, and National Wildlife Refuge systems.

Under the Act, nine million acres of land were set aside as the initial Wilderness System, and procedures were established for additions. Within 10 years after passage of the Act, the Secretary of Agriculture must evaluate the suitability of National Forest lands designated as Primitive Areas for inclusion in the Wilderness System. Also by 1974, the Secretary of the Interior must evaluate the wilderness potential of every roadless area of 5,000 acres or more within the National Park system and every roadless area of 5,000 acres and every roadless island within National Wildlife Refuges and Game Ranges within his jurisdiction, and report his recommendations to the President.

The requirement for review of every roadless area of 5,000 acres or more is not a mandatory minimum; Wilderness Areas can be smaller. The Wilderness Act describes a Wilderness Area as having "at least five thousand acres of land" or being of sufficient size as to "make practicable its preservation and use in an unimpaired condition."

Under the Wilderness Act, Federal agencies were to review one-third of 34 National Forest primitive areas, roadless areas in 57 National Park System units, and 82 roadless areas for National Wildlife Refuge Systems by September 3, 1967. As of that date, hearings had been held on 12 National Forest areas, 10 National Park areas, and 30 National Wildlife Refuges and Ranges. If approved, these areas could add some four million acres to the Wilderness System. A recommendation of the White House Conference on Natural Beauty that the provisions of the Act be made effective as rapidly as possible is being carried out.

By early 1968, Congress passed and the President approved legislation to establish the San Rafael Wilderness Area, Los Padres National Forest; and the San Gabriel Wilderness Area, Angeles National Forest, both in California. The President had recommended to Congress legislation to designate five National Park Service, fourteen Bureau of Sport Fisheries and Wildlife, and eleven National Forest areas for addition to the Wilderness System.



TRANSPORTATION

TRANSPORTATION LINKS ALL OF MAN'S ENVIRONMENTS, his house and neighborhood with his city and country. The horizon of man keeps expanding as his mobility increases with technological advances and prosperity. The lifelong residence in the family house has given way, within a generation, to a five-year average stay in a tract house; the walk to the corner grocery store is now a drive to the shopping center; the trolley ride to work, an hour long commuting trip. Rather than confining a vacation to the summer cottage, many plan a trip abroad, yesterday's pioneering exploration of Central Africa has been replaced in the headlines by tomorrow's impending landing on the moon.

Transportation—this essential element of a highly developed economy—by its extent and its rigid physical requirement has a strong effect on most environments. Cutting its way through cityscape and countryside, the automobile has an impact on man's life never approached in the past by any other form of transportation. Airplanes, catching up with the automobile as an environmental problem, spread deafening noise around airports and across the country.

Transportation facilities should now be planned so that they respond to the increasing demands both for economic, efficient service, and for enhancement of the quality of the environment. With new technology and a better understanding of ecological factors, the near future offers many opportunities for creative planning of new transportation facilities and rehabilitation of old ones to produce favorable effects on the environment.

This chapter first reviews the routing and design of highways. The review is then broadened to include the entire highway corridor, with roadside development, billboards, junkyards, and litter as specific topics. Finally, the environmental implications of three distinct forms of transportation are reviewed: Pleasure driving, public transit, and air transportation.

Transportation

HIGHWAY ROUTING AND DESIGN

In the past, location and design of transportation facilities have focused on speed and economy rather than on their integration with the physical environment, or the pleasure, comfort and relaxation of their users. Efforts to improve this situation are needed in all present modes of transportation: Road transportation, rail transit, aviation, and, to a lesser degree, water transportation. The more critical highway developments are specifically covered in this section on routing and design, but many highway problems and solutions also can apply to the other modes of transportation. The concluding sections of this chapter treat some aspects more particular to mass transit and air transportation.

President Johnson set goals for this effort in his Natural Beauty Message of 1965:

> Our task is . . . to ensure that roads themselves are not destructive of nature and natural beauty . . . to make our roads ways to recreation and pleasure . . . The roads themselves must reflect in location and design, increased respect for the natural and social integrity and unity of the landscape and communities through which they pass.

Since then, the Congress has incorporated this philosophy into national policy as expressed in the Historic Sites Act of 1966, the Department of Transportation Act of 1966, the Federal Aid Highway Act of 1966, and the Highway Beautification Act of 1965.

The highway corridor is all important. It makes little sense to talk about pleasing design of the road and appurtenant structures, if the adjacent land use elements are blighting.

The highway corridor is a band of variable width within and without the highway right-of-way which is most likely to come within the cone of vision of the motorist.

It consists of two elements: One is the roadway or transportation facility itself; the other is the land use pattern adjacent to the right-of-way.

The principal objective of the Highway Beautification Act of 1965 is to improve the quality of the environment by preserving and enhancing the highway corridor through the reasonable control of outdoor advertising and junkyards, and to increase the safety and pleasure of the motorist by providing scenic overlooks and safety rest areas with provision for tourist information centers, comfort stations, and limited recreational accommodations. Since 1965, for example, a total of 509 rest areas have been authorized and 5,406 scenic easements have been approved. Since March 1965, an additional 640 rest areas have been approved for financing with regular highway trust fund money. These amenities are on the increase because of the Highway Beautification Act and will add greatly to more pleasurable driving for many Americans.

The Historic Sites Act helps protect buildings and areas of historical significance from needless encroachments.

The Department of Transportation Act, which elevates responsibility for transportation in the Federal Government to Cabinet level, directs that special efforts be made to preserve the natural beauty of the countryside, public parks and other recreation lands, wildlife and waterfowl refuges, and historic sites. The Act also specifies:

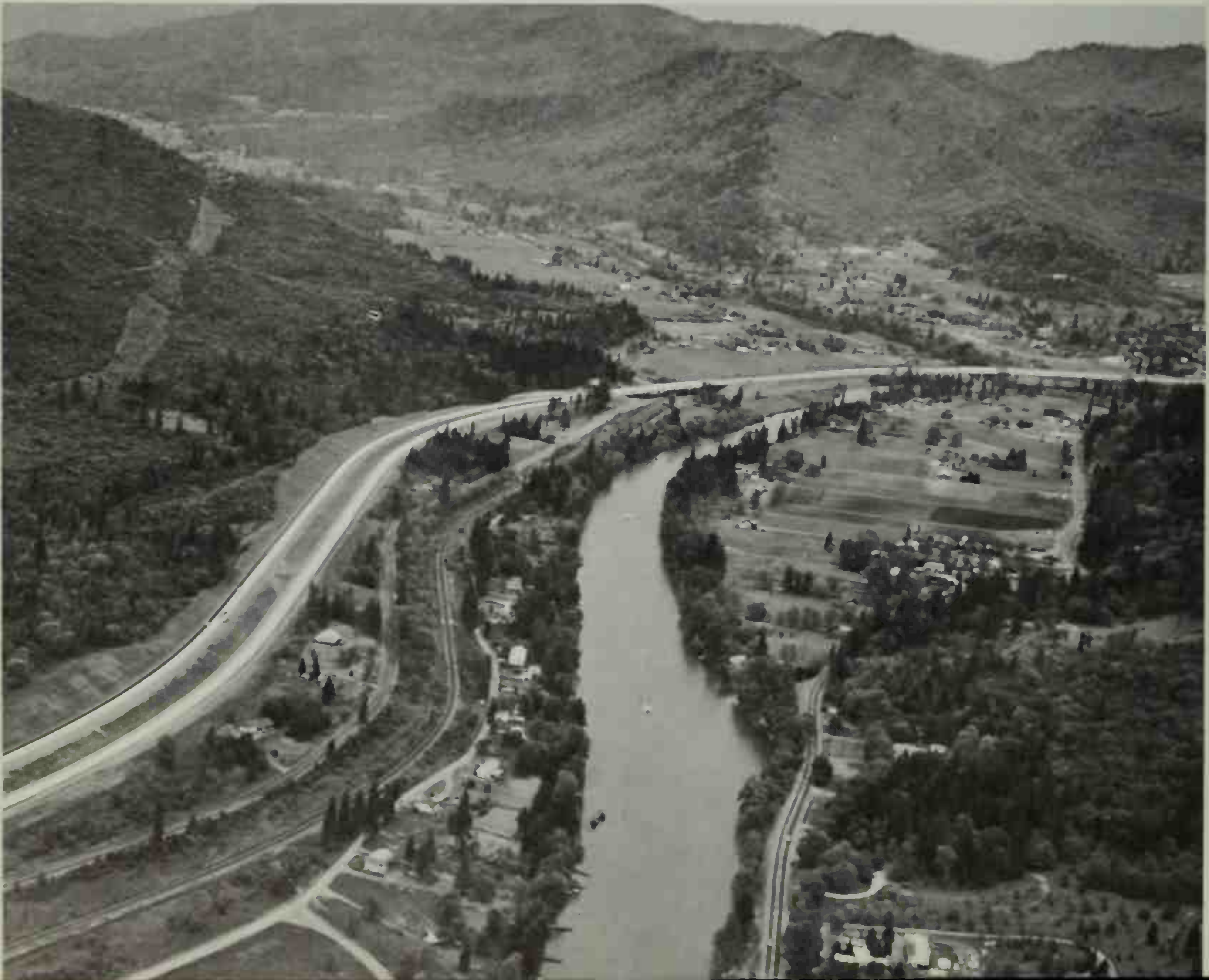
> The Secretary (of Transportation) shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the States in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of the lands traversed. The Secretary shall not approve any program or project which requires the use of any land from a public park, recreation area, wildlife and waterfowl refuge, or historic site unless (1) there is no feasible and prudent alternative to the use of such land, and (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use.

Land transportation routes have traditionally followed the relatively level valleys of streams and rivers.

The 1966 Federal Aid Highway Act includes similar provisions specifically aimed at the interstate and Federal-aid primary and secondary highway systems.

The Highway Beautification Act provides incentives for control of outdoor advertising and junkyards, and for landscaping and scenic enhancement along the corridors of Federal-aid highways.

As part of the efforts to carry out goals expressed by the President in his Natural Beauty Message, an Office of Highway Beautification Coordinator was established in 1965, in the U.S. Bureau of Public Roads. That year, the Federal Highway Administrator also appointed a committee of architects, landscape architects, city planners, and structural designers to develop a set of principles for urban freeway planning. A standing Bureau of Public Roads policy specifies that highway design and location should give full consideration to the impact of highways on recreation, esthetics, conservation, residences, churches and schools, and other social aspects. The Highway Trust Fund and the Highway



Attractively planted and well maintained roadsides, grade level separations between lanes, and median strips that vary in width contribute to both beauty and safety.

Beautification Fund help pay for landscaping and other roadside development, including safety rest areas within the right-of-way.

Other Federal agencies are participating in the national effort toward better roads. The Department of the Interior's Bureau of Land Management and the Department of Agriculture's Forest Service have issued criteria designed to insure that new roads blend with the environment, that buffer strips are left and scenic overlooks provided on areas under their administration.

All these efforts are based on the principles that planning for the location and design of transportation facilities should from the initial stages, fully consider land use, open space, conservation, esthetics, and human social needs, and that experts in these fields should be partners with engineers in transportation planning. Steps in this direction have been taken. Highways, the major element of present transportation systems, are increasingly being planned under a "complete highway" concept. This calls for incorporation of esthetic and social benefits with utility, safety and economy factors. Funding, qualified personnel, and legal authority still are insufficient to carry out this concept fully. But the critical gap is the lack of a method to systematically account for intangible esthetic and social considerations, and assess them against traditional cost-benefit analyses in other than emotional and political terms. Such a gap exists in feasibility analyses of other development projects, besides highways; this is discussed in Part II. The complete highway concept involves the roadway, the right-of-way, the visual corridor, and beyond this, much of the community or the watershed affected by the highway. Many highway location and design controversies involve historic preservation, and waterfront access. Just as critical are the extensive and long-range effects of highway policies on urban development and the natural environment, including outstanding examples of rural America.

One of many examples of highway impact on the quality of the environment occurred in Philadelphia, *The need for more streets, throughways and parking space competes with other increasing land use demands in the city.*

where a planned Delaware Expressway would have separated venerable Independence Hall, Independence National Historical Park, and adjoining historic areas between Independence Hall and Penn's Landing and the Delaware River. The Pennsylvania Department of Highways proposed an open, depressed expressway cutting off Independence Hall from the river. Two groups of interested citizens, the Philadelphia Architects Committee and the Committee to Preserve Philadelphia's Historic Gateway, proposed covering the roadway, adding $25 million to the project's cost; the difference was to come in part from Federal funds. A Federal interagency task force, composed of representatives of the Departments of Housing and Urban Development, Commerce (before the creation of a Department of Transportation) and Interior, and of the Bureau of the Budget was established to review the alternatives. As a result, the importance of preserving the integrity of this significant urban historic area prevailed over strictly economic considerations, and covering the expressway won approval.

The threat of a multi-lane superhighway through some of the oldest and most picturesque areas of the Vieux Carré, New Orleans' French quarter, has induced a campaign by citizen groups of the city to protect this historic area from encroachment by Interstate Highway 10 and to secure a less damaging route.

A double-decked high-standing freeway, along San

CHEVROLET
Gilbey's
Gin-Vodka

The trees and lawns of Golden Gate Park are among San Francisco's notable attractions.

Francisco's waterfront, the Embarcadero, blocks views of the Bay and cuts across the face of the Ferry Building, a venerable city landmark. Ever since citizens of San Francisco realized the impact of this project on the beauty of their city, many of them have been particularly sensitive about the damage highways can do to their environment. In 1958, a "freeway revolt," characterized by acrimonious civic battles which included a mass rally, began against the location and design of a system of freeways proposed by the California State Division of Highways through the city. Opponents contended that the routes would seriously damage Golden Gate Park, the waterfront, and other community values; proponents argued that the damage had to be accepted to get nearly $300 million in Federal aid funds. Since then, the city's Board of Supervisors has consistently rejected various State highway agency proposals, and endorsed the citizen groups' concern for their environment. Until satisfactory solutions can be worked out, freeway links and rapid bridge connections will be missing in San Francisco. Meantime, the city of San Francisco also opposed a proposed route for the remaining seven miles of uncompleted Junipero Serra Freeway, Interstate Highway 280, as approved by the California Highway Commission. North of this area in San Mateo County the Junipero Serra Freeway is an example of an interstate highway which complements the land it traverses and the design of its interchanges, overpasses, and bridges set a fine example of structures that blend into the landscape. However, the portion of the yet-to-be-completed route along the shoreline of Upper Crystal Springs Reservoir, on city-owned watershed land, was selected principally because of lower costs. The city asked that the route be relocated away from the reservoir to reduce water pollution and preserve scenic values and potential for lakeshore recreation benefits. The city claimed that damage caused by the shoreline route would make the actual costs of this route higher than the estimates of the State Highway agency. The Secretary of the Interior supported the city's alternative, and

Striking combinations of engineering and esthetic qualities can be achieved in a structure.

in 1967 the Secretary of Transportation, who administers Federal-aid highway funds, agreed, subject to a financial contribution by the city toward the new route.

In 1967, the Department of Transportation approved a contract between the Federal Highway Administration, the Maryland State Roads Commission, and the City of Baltimore calling for a Federal contribution of $4.8 million toward the work of a team of environmental specialists from various disciplines on the precise routing and design of sections of the Interstate Highway System through Baltimore.

The study, expected to be completed in 1970, may help set a new pattern of cooperation for designing urban highways across the Nation. It is a pioneering effort toward a systematic approach by public agencies to mesh the social, economic, historic, esthetic and other community considerations with highway engineering requirements. The Mayor of Baltimore in speaking of the concept team stated, "it . . . is not a negative program designed to minimize dislocation and disruption, rather it is a positive, bold program to make maximum use of opportunity afforded by the highway construction, to rebuild the total physical and social environment in the entire area."

The design team is made up of four private firms specializing in architecture, city planning, highway and

A Colorado mining town is able to retain its look of the past, bypassed by a carefully designed segment of Interstate highway.

traffic engineering, complemented by specialists in economics, sociology, psychology, political science, and acoustical, electrical, lighting and mechanical engineering. Both the Maryland State Roads Commission and the Federal Bureau of Public Roads have full-time representatives on the project.

The team's assignment is to design the highway as an integral part of the city's life. The studies are encompassing the entire Baltimore regional traffic pattern, mass transit, commercial transportation, neighborhood characteristics, and other aspects influencing the design of a highway. The project gives the city an opportunity to formulate a highway program conforming to its overall developmental goals.

A similar approach is underway in Chicago where a similar design concept team will be used to develop the proposed Crosstown Expressway, with the aid of a $2.3 million Federal grant. The Chicago designers have more flexibility than those in Baltimore where highway corridor limits or general location of the route were fixed before the team approach was adopted. Such an approach to highway planning can provide many opportunities for overall community design involvement—for example, the acquisition of land needed for other public purposes at the same time as, and often for little more cost than, the land for highway use alone.

To implement the provisions of the Department of Transportation Act relative to interagency cooperation, a Federal interdepartmental committee was established in 1967. It will advise the Secretary of Transportation on environmental criteria for Federal-aid highways and other transportation facilities, and on individual projects involving major environmental policy issues.

The Council recommends that States which have not already done so establish an interagency committee to advise State transportation agencies on environmental quality criteria for highways and other transportation facilities, and on individual projects involving major environmental policy issues.

The Council proposes that Federal and federally assisted transportation projects in metropolitan areas be required to conform to comprehensive regional plans that involve all relevant modes of transportation, geared to meet varied transport needs, and give due regard to natural beauty. It further proposes that Federal agencies increase technical and financial support to regional agencies for the preparation of such plans through existing authorities.

The Council recommends that State and local transportation and planning agencies follow the Department of Transportation Act policy designed to protect parks and other public recreation areas against needless encroachment by transportation facilities. Public agencies are urged to extend this policy to the protection of other outstanding scenic areas.

The approach to many a city large and small across the country gives little indication of the distinctive character of the place.

ROADSIDE DEVELOPMENT

Strip development of the land adjoining highways is perhaps the most obvious example of man's disregard of urban and rural beauty. In and around many American cities, gas stations, truck stops, motels, garages, used car lots, snack bars, signs, blinking lights, flying banners and colored displays distract travelers, offend the senses, and injure community pride.

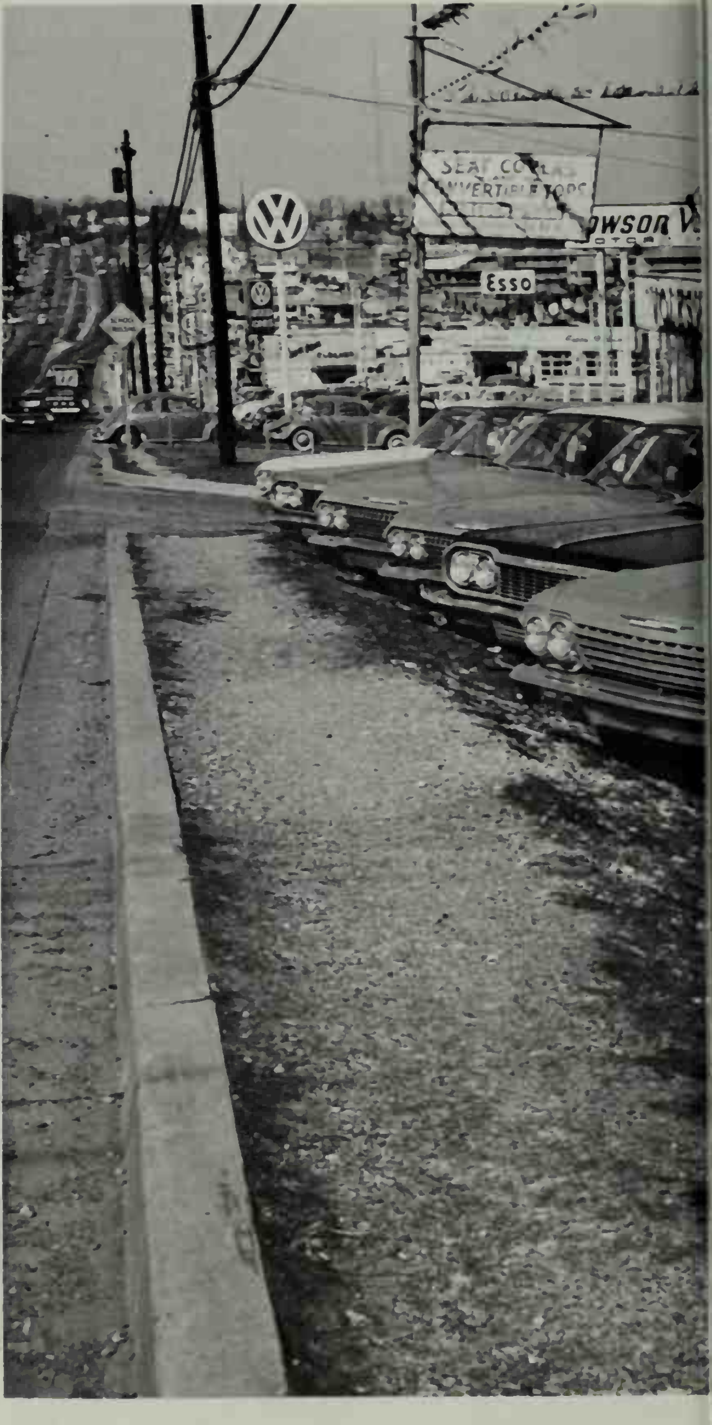
Stop-and-go shoppers who must drive short distances to reach various specialty shops add to the congestion, compete for driving space with through travelers, and increase the likelihood of accidents.

Commercial establishments dependent upon motorized shoppers outdo each other for attention, stretch out over long highway frontages, and devote much of their land to duplicating customer parking areas. Highway oriented industry moves to such strips and competes for the available space.

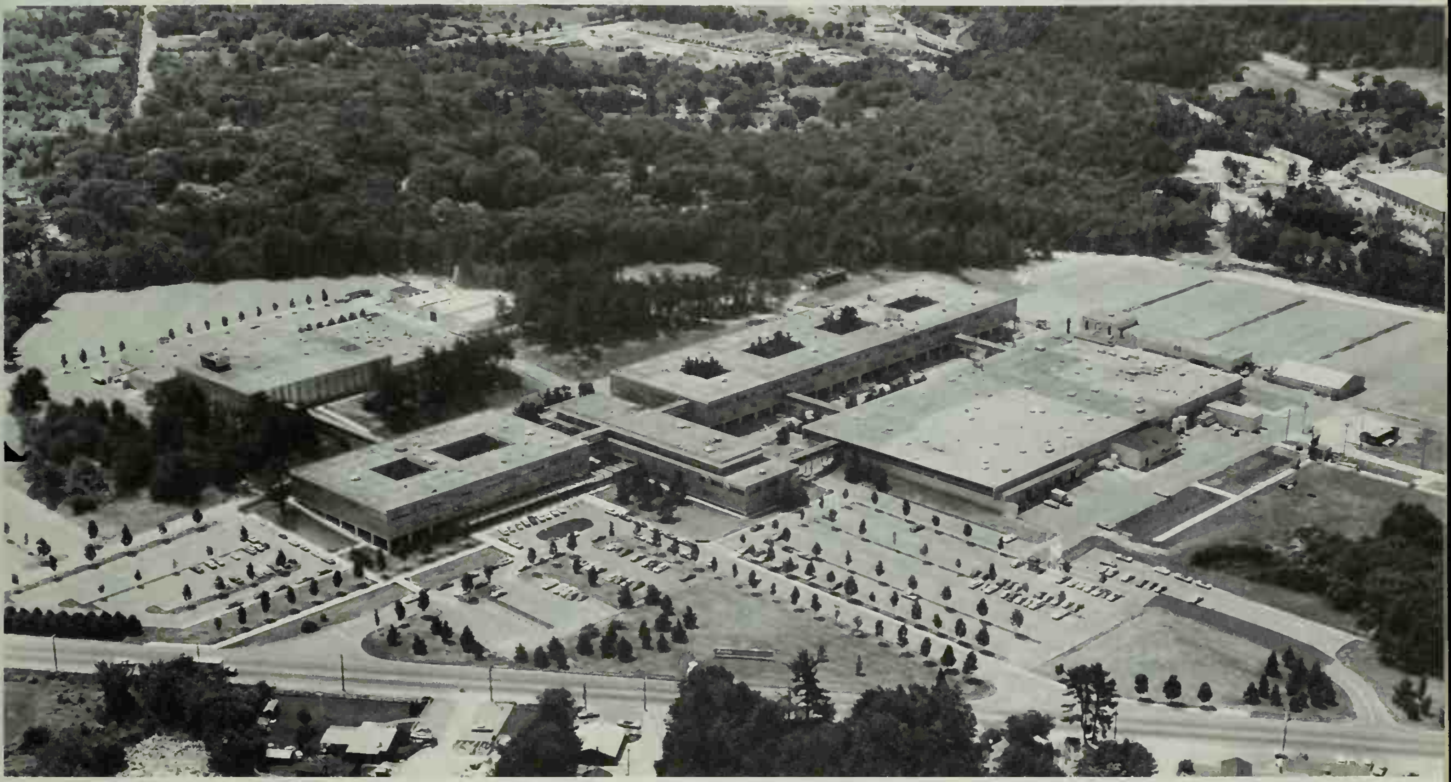
There is an alternative. Typical strip development is as unnecessary as it is undesirable. It is often the main entrance to the city, where a more attractive and dignified welcome would be in order. Business wares can be better displayed and shoppers better served by off-the-highway shopping malls surrounded by ample parking space. Designed, laid out, and landscaped as a unit, a mall can be both efficient and attractive. A well-designed sign system, rather than a garish display, can both inform customers more effectively and preserve good taste.

Northland Shopping Center in Detroit, for example, offers tree-lined pedestrian approaches through parking areas, limited automobile access from highways, restrained advertising, and well-designed landscape planting. Passers-by avoid traffic congestion and there are no flashing signs or flying banners to distract travelers.

Similarly, industries of all types, from manufacturing to research and office headquarters, have found the value of congregating in industrial parks off the highway. The easy access, parking, and quiet, natural surroundings are



Well planned industrial parks, shopping centers, or business complexes can be accessible to high speed highways in such a way as to reduce the hazards which slow moving traffic can cause.



appreciated by management, employees, and customers alike.

The construction of limited access highways bypassing commercial strips which have lost their capacity to accommodate through traffic efficiently helps eliminate the strips. Unfortunately many new superhighways also are rapidly lined by commercial developments along frontage roads constructed by State and local agencies. Tax assessment rates based on the commercial potential speeds up this process. Local planning, and control of roadside development can limit such development, for commerce, industry, and real estate interests of the community work together. In California, an unusual State law has made protective land use zoning mandatory for cities and counties along a new major State freeway planned on the west side of the San Joaquin Valley.

A comprehensive approach is needed to insure attractive roadsides. As a basic element of the complete highway concept, highway corridors require thorough State and local study, leading to specific measures enhancing and protecting their visual attractiveness to motorists. Scenic enhancement represents the major portion of the cost of the Federal Highway Beautification Program and is producing the most noticeable results. The Highway Beautification Act of 1965 authorizes the use of an amount equal to three percent of the funds apportioned to a State for Federal-aid highways for the acquisition of scenic easements for the development and protection of outstanding scenic areas, for the construction of rest areas and picnic areas, for acquisition of scenic overlooks, and for landscaping of the roadside of Federal interstate, primary and urban highways. Since the Act was passed through 1967, some 4,000 highway

beautification projects costing $135 million have been authorized, and many are already completed. State highway departments have constructed or improved 1,600 rest and recreation areas on interstate and primary highways. Plans call for more than 6,000 additional areas by 1975.

Statewide voluntary roadside councils have been successful in improving communication between highway agencies, local governments, and interested citizen groups in the 17 States where they are active.

The Route 100 Association in the Green Mountains of Vermont was organized to save nearby roads from the proliferation of "Indian" trading posts, animal "parks," and similar establishments which degrade the natural environment and increase traffic hazards caused by automobiles entering and leaving the highway. In an effort to preserve the pastoral scene characteristic of Vermont, the association discourages the establishment of incompatible roadside businesses and encourages all roadside businesses to use discretion in advertising.

Throughout the Nation, soil and water conservation districts have cooperated with local and State highway authorities. Often they have enlisted the active cooperation of adjoining private landowners in correcting roadside erosion problems and providing suitable plantings with technical help from the Soil Conservation Service.

For example, assistance was provided by the St. Charles Soil and Water Conservation District of Missouri for roadside plantings along Highway I–70 near O'Fallon. Boy Scouts did the planting. In the Broad River Soil and Water Conservation District in Georgia, the Comer Women's Club has planted daylilies on shaped and sodded roadside banks. The New Mexico State Highway Commission, under an agreement with the Soil Conservation Service, has established a $25,000 a year trust fund to pay for technical assistance on road-

A State park offers overnight rest for campers as well as the usual roadside rest facilities.

Signs present a continuing problem—how to inform the motorists of diverse choices as to necessities and comforts along his route without unduly cluttering the countryside.

side stabilization and planting. Similar action has taken place in other States, but the rapid rate of development of the countryside will require greater citizen participation if roadsides are to retain or regain their attractiveness.

The Clarke-McNary program of Federal-State assistance to rural landowners for tree planting could be of greater use in carrying out today's natural beauty policies if amended to allow planting for esthetic purposes as well as for farm windbreaks and timber production. Increased emphasis is needed on roadside stabilization, erosion control, and landscaping in Federal and State programs. Private action to improve landscaping along public highways could be stimulated by strategically located demonstration projects. These could incorporate both wild flowers and native flowering trees and shrubs. There is a need for highway grading and planting to blend with natural vegetation and land forms, and to furnish a buffer for noise and sight in urbanized areas. Similarly, there is a need for highway planning and construction to minimize the destruction of native plant and animal communities; and of outstanding natural and historical settings. More roadside stopping areas which give motorists opportunities to enjoy these resources need to be provided.

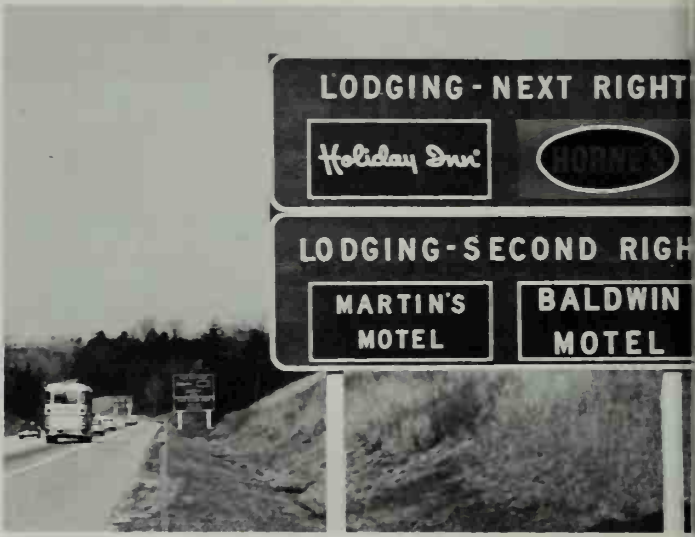
Two particularly objectionable aspects of corridor development, billboards and junkyards, are discussed in the sections which follow.

OUTDOOR ADVERTISING

National efforts to control outdoor advertising date from 1958, when Congress offered each State a bonus for limiting outdoor advertising along federally assisted Interstate highways. When this bonus offer expired on June 30, 1965, only 25 States had agreed to control advertising. At best, only 18,000 miles of the 41,000-mile Interstate System would have been protected.

The Highway Beautification Act of 1965, the principal Federal legislation now affecting outdoor advertising, provides that "outdoor advertising signs should be controlled to protect the public investment in our highways, to promote the safety and recreational value of public travel, and to preserve natural beauty." States which the Secretary of Transportation determines have not acted effectively to control the erection of outdoor signs, displays, and devices within 660 feet of the right-of-way along the Interstate and Primary system, may have their highway construction funds reduced by 10 percent. Advertising on the premises of the business advertised is exempt from control, and signs are permitted in com-

MENDES
Food Center
IN REDWAY
2 MILES NORTH
of Garberville
on HIGHWAY 1
OPEN 7 DAYS
FR E PARKING
MOTEL
FREE COFFEE TV
Garberville
Just on left
REDWOOD INN
MOTEL



Some major highways employ a standard format for commercial signs.

mercial or industrial zones and areas subject to size, lighting and spacing controls.

By May 1, 1968, some 31 States had enacted legislation to put the outdoor advertising control provisions of the Act into effect, and the Federal Government had entered into agreements covering size, lighting and spacing, and the definition of unzoned commercial or industrial areas with Rhode Island, Vermont, Hawaii, Virginia, New York, Connecticut, Kentucky, Minnesota, Maine, Utah, California, Maryland, Alaska, Pennsylvania, Puerto Rico, and the District of Columbia. Negotiations are underway with 32 other States. Specific provisions of the agreements signed to date vary widely from State to State.

In early 1968, Vermont joined Hawaii in banning all off-premise outdoor advertising signs. Conscious of the State's natural beauty and its attraction to tourists, the Legislature enacted a law banning billboards and providing for State-erected information signs along the highways and in information centers. The tourist industry in Vermont backed the legislation.

In many places cities have taken the lead ahead of the States in billboard control. In 1963, Aspen, Colo., installed a sign mall to replace billboards along State Highway 82 between Aspen and Glenwood Springs. Aspen businesses volunteered to remove their billboards or to let their billboard contracts expire. Built at a cost of about $10,000 on county-donated land near Aspen's airport, the mall provides 10-square foot signs or 20 square feet for combined businesses with indirect lighting but no neon flashing or moving lights. The mall space is so popular that it has drawn 64 paid-up subscribers and there is a waiting list.

In 1967, the Hawaii Supreme Court reaffirmed esthetics as a legally enforceable community objective. The test case involved a 40-foot-high advertising sign which violated a Honolulu ordinance limiting the height and size of outdoor signs. The violators were fined. An appeal was made to the Supreme Court on the grounds that the ordinance was arbitrary and unreasonable, and unconstitutional because it was based exclusively on esthetic considerations and therefore outside the scope of the city's police power. The court denied the appeal and, referring to a provision of the State's Constitution designed to protect natural beauty, said, ". . . the natural beauty of the Hawaiian Islands is not confined to mountain areas and beaches." The court added that "the terms 'sightliness and good order' do not refer only to junkyards, slaughter houses, sanitation, cleanliness or incongruous business activities in residential areas . . . we accept beauty as a property community objective, attainable through the use of the police power."

As recently as March 26, 1968, the Supreme Court of the State of Washington upheld the constitutionality of the State's outdoor advertising control law. The State Supreme Court determined that Congress had not invoked the Supremacy Clause of the Federal Constitution by preempting the field of regulation covered by the State act and that the Federal law does not interfere with the State act as written.

In referring to the esthetic issue, the court noted that outdoor advertising is not conducted completely on private property; both the sign and viewer are essential

Clutter can obscure the information the signs are intended to provide.

to the operation of the business. The court indicated that the use of the public highway for advertising purposes is a business clearly involving a substantial public interest which the State may appropriately regulate under the police power.

The court further stated in this regard that:

> We may take judicial notice of the fact that this State is richly endowed with scenic beauty and that one of the common purposes of travel along our highways is to enjoy that beauty. The public welfare embraces healthful recreation and the protection of our natural resources.

Concern over detrimental effects of highway signs on environmental quality has led the Department of Transportation to examine the broad question of transportation communications, graphics and controls. In 1967, the Secretary of Transportation directed the Assistant Secretary for Research and Technology to begin a study of the various media for communicating information and safety factors on streets and highways in rail and air terminals, as part of transit systems and elsewhere throughout the transportation network. The objective of this study is to improve transportation signs and informational techniques with particular emphasis on effectiveness, esthetic quality, and environmental compatibility. The study group includes specialists in graphic design, conservation, urban design and planning, engineering, psychology and safety and traffic operations. In addition, the Department of Transportation's Federal Highway Administration has established a Task Force to study the problem of Transportation Graphics and Communications. The Task Force held a seminar during April 1968 and published the findings of its participants who represented Federal, State, and local agencies, universities and industry. Subsequent meetings of the Task Force will give in-depth consideration to various problem areas relating to highway graphics and communications and will seek to involve both industry and academic specialists in the resolution of problems in the area.

Following the President's Natural Beauty Message, other Federal agencies have reviewed their policies on outdoor advertising signs. The Bureau of Reclamation, among other Federal agencies, now prohibits commercial signs on land it controls. The Bureau of Land Management has inventoried commercial signs along the roads through public lands in Arizona and is removing some 600 of these signs which it found illegally placed.

High standards for protecting natural beauty can pay tourist dividends. Along the Blue Ridge Parkway, which stretches for 469 miles in Virginia and North Carolina, the National Park Service has resisted pressures from businesses in adjacent towns to place signs along the roadside to direct motorists to their places. Instead, commercial literature is placed at regular stopping places on the parkway. Some eight million tourists each year experience little difficulty in finding attractions and services, and tourist-related business has prospered. The beautiful countryside along the way can be enjoyed without the intrusion of signs and billboards.

Although an imposing current of public opinion has developed against the blighting effect of billboards on the landscape, powerful efforts of billboard proponents

DRIED
Apricots
JUMBO
PRUNES
ICE COLD
MELONS
BERRIES
ALMONDS
WALNUTS
OLIVE
HEADQU
ALMONDS
MELONS
11 for 1.00

Discarded cars cover the landscape in an evergrowing permanent parking lot.

All kinds of vehicles come eventually to the end of their usefulness.

directed at all levels of government have managed so far to render control measures largely ineffectual. The intent of the Highway Beautification Act to achieve effective billboard control in large part remains to be implemented.

AUTOMOBILE DISPOSAL

The tremendous increase in the production of autos since World War II, their greater use and shorter life expectancy, have in the past decade created a disposal problem and environmental pollution of major proportion and national concern. By 1966, about seven million vehicles a year were retired from the road; this rate is expected to double or triple in the next 30 years. Many cars are abandoned by their last owners. New York and Philadelphia, each report about 27,000 cars abandoned each year.

Whether abandoned along the roads or accumulated in auto graveyards, these vehicles are particularly unslightly; if burned, they pollute the air with heavy smoke and objectionable smell. They often invite littering, harbor rodents and other pests, and create dangerous attractions for children.

Two nationwide reports were published in 1967 on different aspects of the junked automobile problem: "Motor Vehicle Abandonment in U.S. Urban Areas," by the Business and Defense Services Administration of the Department of Commerce, and "Automobile Disposal, A National Problem," by the Bureau of Mines of the Department of the Interior. These two agencies and the Institute of Scrap Iron and Steel, the National Auto and Truck Wreckers Association, and other organizations, private firms, and public agencies are conducting further research into the problem.

The problems of handling discarded cars exist at all three steps of recovery, storage, and disposal, and involve legislation and law enforcement, technology and economics:

RECOVERY

Valuable parts often can be recovered from newer cars damaged in accidents, and the trade-in system provides for easy disposal of an old car upon purchase of a newer one. But at the end of their useful life, typically after eight years, cars depreciate to the point of having no trade-in value, run poorly if at all, and become liabilities to their owners. Lacking incentives or convenient alternatives, many irresponsible owners abandon them.

Abandoned auto laws along the lines of model legislation drafted by the Council of State Governments can help halt indiscriminate abandonment of vehicles and provide for the owners to defray disposal costs. In 1967, the Guam Legislature earmarked a portion of automobile license fees for removal of wrecked or abandoned cars. Improved auto title laws and methods of tracing ownership would help. In some jurisdictions authority of public agencies to remove abandoned vehicles from public and private properties need to be clarified and followed by more active collection programs. Well advertised and planned disposal areas, easily accessible in all communities can help solve the problem.

STORAGE

Junkyards can be located away from public view, or effectively screened if within sight of roads or other public places. Many local jurisdictions control the location, activities, and appearance of junkyards. The Highway Beautification Act of 1965 provides cost-sharing grants for the screening or removal of junkyards, scrap metal processing, automobile wrecking, and similar activities located within 1,000 feet of the right-of-way of Interstate and Federal-aid Primary highways, except in industrial areas. Forty States and Puerto Rico have enacted legislation in compliance with the Act; the remainder are expected to do so at their next legislative sessions. Those States which fail to enact appropriate legislation face possible withholding of Federal-aid highway funds.

At this early stage of the Act's existence, progress can be observed. All 75 junkyards along the 4,000 miles of the North Dakota State primary road system, for instance, have been eliminated or screened. In all, over 1,500 junkyards have thus far been screened or removed from view from the Interstate and Federal-aid primary system.

Many junkyard and wrecking yard owners and trade groups are voluntarily screening and improving their operations. Their awareness of public opinion regarding the impact of their activities, and their cooperation, are essential for large-scale improvement. (See page 251 for activities of the National Auto and Truck Wreckers Association and the Institute of Scrap Iron and Steel in these areas.)

DISPOSAL

The most effective solution to the junk auto problem lies in improving the disposal process. More rapid conversion or recycling of junk cars to useful materials would, for one thing, reduce the size of junk and wrecking yards. Recycling involves salvaging of reusable auto parts, and processing of the remaining automotive scrap for remelting by steel mills and other industries.

In recent years spectacular new "crushers," "shredders," "cutters," and "fragmentizers," have been developoped to improve the scrapping process, decrease transportation costs, and to eventually reduce the accumulation of cast-off cars. In 1967, for example, the Ford Motor Company and Luria Brothers, a processor of scrap vehicles, built two plants for rendering old cars into usable forms of scrap metal. Each plant can process about 300,000 vehicles a year into scrap to be reprocessed and used by Ford in new car production. Other shredding plants have been built with several more under construction or in the planning stage.

In a recovery operation metal in an old automobile is rendered usable as scrap and transported to a factory for reuse.

Roadside litter accumulates from trash thrown at random from passing cars, and from the dumping of household or business waste by people wishing to avoid the trouble or expense of proper disposal.

Although some 6½ million tons of processed automotive scrap are sold yearly, much more of this mineral resource could be recovered. The economics of processing and marketing scrap metals involves complex factors such as ore pricing, transportation rates, technology and taxation. Government involvement at some step in this process may be necessary to make reuse of junked automobiles feasible. The Office of Metals and Minerals in the Business and Defense Services Administration of the Department of Commerce is now engaged in a broad review of the automobile and truck wrecking industry to determine the causes of major problems and barriers to more efficient marketing of automobile and truck scrap metal. That report is expected to provide feasible suggestions for remedial action by government and industry.

ROADSIDE LITTER

Rural roadsides and city highways are despoiled by thoughtless, careless motorists who toss from their cars a remarkable range of waste products.

It costs the American taxpayers an estimated $100 million a year to pay for picking up highway litter. State highway agencies alone spent $25 million in 1966. Litter costs even more in indirect costs; littered countryside reduces the pleasure of recreational outings and traveling, and nails and glass puncture automobile tires.

One obvious way to limit highway litter is for every motorist to have and use a litter bag, and for every road to provide convenient receptacles for the bags. The Bureau of Land Management helps by distributing thousands of litter bags to hunters and others using the public lands of the West.

State and local authorities, gas stations and other roadside establishments have many opportunities to promote the use of receptacles; many provide sufficient attractive, convenient and frequently serviced containers.

All States forbid littering. Fines range widely—from $1 to $1,000. Georgia has a $1,000 maximum fine; Missouri and Ohio, $500; Kentucky, $300; and California, $250. Enforcement of severe penalties for such a common offense is difficult. Realistic laws with reasonable penalties strictly enforced all along the Nation's highways would help control litter.

A concerted attack upon the problem by many organizations has long been underway. Keep America Beautiful, Inc., has been a leader since 1953. In 1966, more than 60 Illinois chapters of the National Campers and Hikers Association conducted a highway litter clean-up program which helped to call attention to the State's litter problem. In 1966 the Mississippi Forestry Association acted to remove the accumulation of litter on forest land owned by its members. At the request of the association, the Governor issued a proclamation declaring spring 1966 as "The Beautiful Spring." Association

Well tended agricultural lands provide pleasant vistas for passersby.

members cleaned up and screened roadside dumps, and sought public cooperation in carrying out the program. It paid off in more attractive roadsides.

The reduction of roadside litter requires a combination of law enforcement, individual citizen responsibility, and support from business and industry for programs of education, research, and action.

DRIVING FOR PLEASURE

It has been estimated that at least one-half of all automobile travel in the United States is for social or recreational purposes. Tourists, it is estimated, spend $30 billion annually in the United States, and half of the States consider tourism a major source of revenue.

Though the present Interstate and State highways and local roads offer many miles of enjoyable motoring, roads designed primarily for pleasure driving are scarce, particularly in the urban regions. Road planning in the past has given little recognition to the part which roads might play in providing interpretation and promoting appreciation of cultural and historic attractions and the natural environment which they traverse. In fact, road planning often has discouraged travelers from enjoying nature or reliving history, taking them unaware past historic or scenic areas.

Increasingly in recent years, however, efforts have been made to provide opportunities to drive for pleasure, and to make driving more pleasant as well as safer. Automobile and tourism associations, chambers of commerce, oil companies, and the press promote the recreation benefits of automobile travel.

Electric utilities have helped develop recreation drives along the scenic lakes their power dams often create. The recreation plans required in license applications to the Federal Power Commission for hydroelectric development projects often provide for such roads and complementary facilities. Selective clearance of trees and shrubs to open attractive vistas is a desirable feature of these plans.

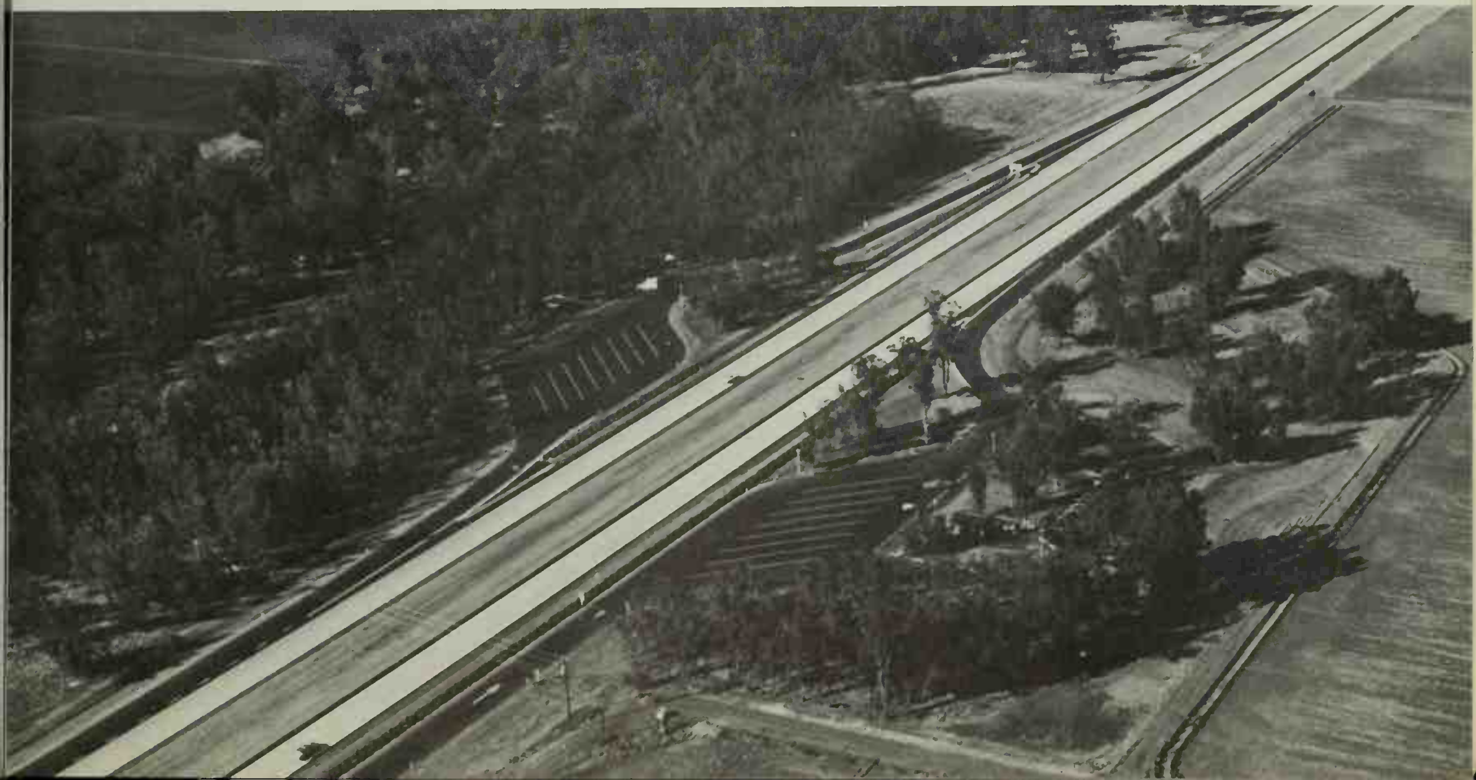
Roadside rest areas provide oases of shade, and room to stretch the legs or places to picnic.

Many routes have been designated by States, localities, and citizen groups along existing roads to stimulate appreciation of historic and natural resources. Signs, plaques, and brochures help guide the public along such routes as a Revolutionary War "heritage trail" in the Boston area and Civil War points of interest near Gettysburg, Pa.

State interest in scenic roads is growing. The Tennessee Department of Highways, for example, is landscaping and otherwise enhancing scenic areas along 400 miles of Interstate and Primary highways in that State. U.S. Highway 41 from Guild, Tenn., to Chattanooga is being developed as a scenic road, with plans for wayside parks and scenic easement acquisitions. Washington State has established a scenic and recreation highway system, including 25 segments of State highways.

California has a master plan which designates portions of the State and Interstate Highway System as State Scenic Highways. An Advisory Committee on Scenic Highways, established by the Legislature, and an interagency committee assist the State Director of Public Works in setting planning and design standards for the scenic system and in approving highways which conform to these standards and have an adequately protected scenic corridor. The first such highway, designated in 1966 and posted with distinctive signs, is dramatically located along the cliffs of the Big Sur coastal area in Monterey County. Under a 1965 California Parkway Act, the State also is developing a master plan for pleasure drives in metropolitan and scenic areas; these drives would become part of the State park system rather than of the State highway system.

The route of the Lewis and Clark Expedition from the mouth of the Missouri River to the mouth of Columbia River is typical of opportunities for development of historic and scenic recreation ribbons. In 1964, Congress established the Lewis and Clark Trail Commission. In 1965, the Bureau of Outdoor Recreation published "The Lewis and Clark Trail, A proposal for Development," which was accepted by the Commission.



Back roads offer quiet beauty at a pace slow enough to enjoy it.

The report recommended that a motor route follow closely the historic trail, using existing roads as much as possible. It also suggested a uniform symbol to mark the route; development of complementary hiking and horseback trails; public acquisition, development and interpretation of the important historic, wildlife, and scenic resources along the route; the establishment of State committees to coordinate the program; control of water pollution, and the creation of local associations to promote the Trail and private enterprises providing visitors services along the Trail.

The Great River Road, traversing the ten Mississippi River States, eventually will provide an interstate route with nationwide appeal. Initiated by the States along the river, and the subject of a joint study by the Departments of Commerce and Interior, the project is being carried out by the States, with Federal financial assistance, following existing roads wherever possible.

The Forest Service builds some 500 miles of new roads, and reconstructs 600 miles of existing roads each year in the National Forests. In addition, purchasers of government timber construct around 3,500 miles of logging roads annually. Many provide valuable access to various recreation opportunities.

The National Park Service has developed a number of outstanding recreational roads, among them the Colonial National Parkway, Natchez Trace Parkway and the Blue Ridge Parkway.

Auto nature trails, now being developed in several National Parks, National Forests, and State parks and forests, will provide interpretative services for visitors.

In 1967 the President's Council on Recreation and Natural Beauty released a nationwide report of scenic roads and parkways opportunities. The report was prepared by the Bureau of Public Roads, Department of Commerce, and entitled, "A Proposed Program for Scenic Roads and Parkways." It reviewed needs for developing facilities for recreation driving and suggested criteria by which a national system could be established and scenic roads and parkways selected and designed. A new program of Federal cost-sharing grants to States was recommended to help build such recreation roads. The Council published the report to provide opportunity for public discussion of the policy questions involved. These include: Should there be a national program of scenic roads and parkways? If so, what should be its scope, orientation and priorities? How should such a program be administered and funded? The Citizens' Committee on Recreation and Natural Beauty, in its 1967 annual report, recommended that the Council rapidly resolve these issues so that a program could be adopted. In the meantime, the Committee urged prompt action to protect existing scenic roads using the means already available to State and local governments. In 1967 the Committee sponsored a scenic roads conference to discuss next steps for scenic roads programs. An analysis of the Scenic Roads and Parkways report will be made by the Council, and recommendations will be presented in the context of the Nation's total highway and recreation needs.

Overlooks provide places to stop and enjoy views not readily visible from the moving car.

Pending decisions on these questions and following the suggestions of the Committee:

The Council recommends that the States make a vigorous effort with the tools and programs now available, particularly the Highway Beautification Act, to inventory, protect, and enhance the scenic and recreational values of existing and proposed roads.

This opportunity was emphasized by the Scenic Roads and Parkways report: About 80 percent of the mileage it proposed for a national system of scenic roads and parkways would be on existing roads, the rest on new locations.

National, State, and regional systems of scenic roads and parkways, complemented by, or giving access to trails, vista points, picnic areas and other facilities can provide expanded opportunities for leisure driving, enjoyment of scenic beauty, appreciation of historical heritage and wildlife, as well as compatible recreation activities. Development of these systems of recreation roads will require concerted action to unify fragmented Federal, State, and local programs, and close collaboration between natural resource, recreation, and highway agencies.

PUBLIC TRANSIT

Transportation of people within the city and especially between the core of the city and its ever-expanding suburbs, is heavily dependent on private cars. Their advantages over public conveyances—their comfort, convenience and the sense of independence and privacy they give—have, in their owner's judgment, outweighed their additional public and private costs. As a result, cities have devoted to the automobile each year increasing proportions of valuable land without noticeably reducing traffic congestion.

Multi-lane expressways, vast interchanges, entire blocks cleared and paved or multi-story garages to store cars at their destination make commercial and employment centers more easily accessible. But at the same time great single-use vacuums are created which break up the cohesion of the city and reduce its fitness for other human activities. The great number of cars and supporting facilities substantially contribute to the visual as well as social disruption of the city, and to its noise and air pollution.

Trees along the street and flowers in the parking lot, a better looking garage, a less disrupting freeway—all lessen the impact of the auto on the city. But these features will not affect the disproportion between the space required for cars—more than 50 percent in many downtown areas—and that devoted to all other urban uses. Once, trolleys were extensively used to move people in urban areas before they could afford to have their own cars. Today, while the majority of Americans can afford cars, their cities increasingly are unable to cope with the burden cars impose on them.

If this trend is to be reversed; a new version of the

Many lanes are necessary to carry rush hour traffic in and out of big cities, and still there are delays.

Commuters, residents and visitors all have cars to be parked.

trolley is required. But it must be new; public transit must be adapted to modern conditions if it is to offer an acceptable alternative to the car. Whether train, subway or elevated, bus, monorail or air-cushioned vehicle, or a new product of future technical development, successful mass transit will have to be rapid, frequent, comfortable, safe, cheap, and able to connect widespread origin and destination points. In addition, every passenger wants to be assured of a seat and a minimum of standing in line.

The Urban Mass Transportation Act of 1964 established a national policy of aiding public urban transportation. This Act authorizes the Department of Housing and Urban Development to make loans and grants to help States and local agencies develop and coordinate mass transportation service. The Act also authorizes research, development, and demonstration projects. These authorities are to be transferred to the Department of Transportation pursuant to Reorganization Plan No. 2 of 1968. Among the test projects are downtown minibuses, new rapid transit equipment and controls, and less expensive methods of tunneling. The Urban Mass Transportation Program already has shown that consideration for the quality of the environment can accompany the development of better transit facilities. A grant to Minneapolis is enabling the city to develop a

Existing transit systems are often not capable of handling their increasing loads and providing for the comfort and convenience of the passengers.

landscaped mall, which includes an exclusive bus lane, shelters, and benches.

During 1966, 27 cities and the transit authorities of 16 States participated in the Urban Mass Transportation capital grant program. Grants totaled nearly $113 million and helped pay for 1,037 new buses, 35 rail commuter cars, the rehabilitation of 26 buses, and other transit equipment and facility improvements.

Several grants have emphasized transit improvements in underprivileged neighborhoods, particularly those where jobs, recreational opportunities, and health and social services are not available in the core area. Relatively light volume crosstown transit services are needed in such situations. A $2.7 million rapid transit demonstration project in Watts and East Los Angeles built a weekday volume of over 2,300 passengers in less than a year. More than one-third of the passengers have indicated that the demonstration bus route enabled them to obtain or to hold their jobs.

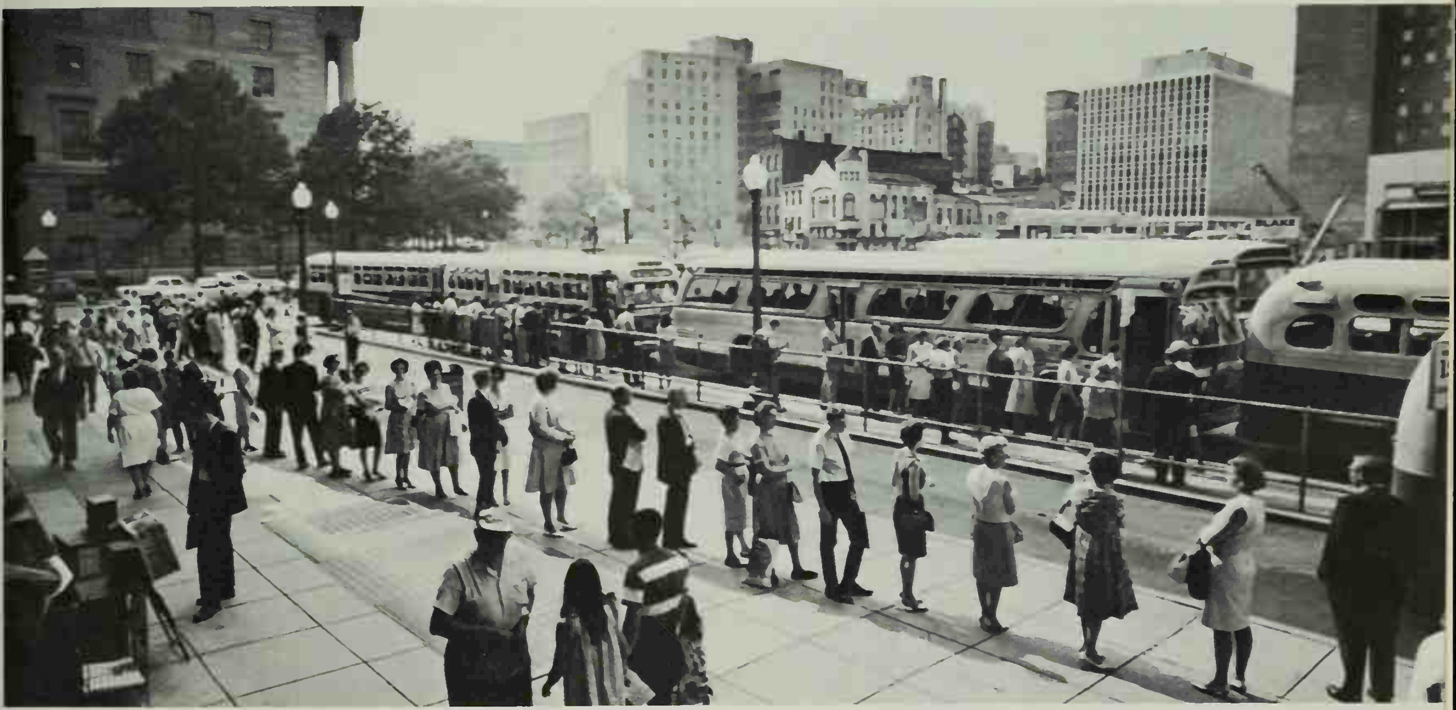
In Nashville a $723,000 two-year demonstration project is testing the merits of an express bus service connecting residential areas, particularly those with low incomes, with nine regional hospitals. The service will be scheduled for employees, patients, and visitors, and two of these hospitals will give prenatal care programs geared to the new bus service.

Five U.S. cities operate rail transit systems: New York, Chicago, Philadelphia, Boston, and Cleveland; all have modernization and expansion programs underway. San Francisco, Seattle, Atlanta, and Washington, D.C., are well advanced in planning new rapid transit systems. Baltimore, Detroit, Pittsburgh, Minneapolis-St. Paul, and St. Louis are considering them.

A $35,000 research contract was awarded in 1967 by the Department of Transportation to study the prospects for free transit service in cities, and the financial, social, and environmental implications of the idea in the Boston area.

While reducing the impact of the automobile on the urban environment, transit systems in themselves often are less than objects of beauty. The Urban Transporta-

Construction of the Bay Area Rapid Transit system will afford fast and comfortable commuter transit for citizens of the San Francisco metropolitan area.



Buses must compete with the door to door service and convenient schedule of private cars.

tion Administration of the Department of Housing and Urban Development initiated in 1967 a program of design awards for new and rehabilitated transit systems, including rolling stock, stations and rights-of-way, their planning and influence on the urban environment.

The Massachusetts Bay Transportation Authority, coaxed by the Civic Design Committee of the Boston Society of Architects, has selected a well-known local design firm to change the shape of its dark, dirty, noisy, smelly, and confusing subterranean stations and cars, as part of a $400-million expansion program. In 1967, the Boston Institute of Contemporary Art staged an exhibit, "Design in Transit," which focused on the graphic design for the Massachusetts Bay Transportation Authority transit stations and material relating to the use of the Massachusetts Bay Transportation Authority system, the overall subway environment for Boston's subway, built in 1897, is the Nation's oldest.

In 1967 the Department of Housing and Urban Development convened a Conference on Design in Urban Transportation, at which transit and other urban specialists investigated ways to give mass transit systems the quality needed to attract users and to integrate these systems with community life and environment.

The first grant awarded under the Urban Beautification Demonstration Program of the Department of Housing and Urban Development was made in 1967 to the San Francisco Bay Area Rapid Transit District. The grant of almost $450,000, representing 90 percent of total project cost, is being used to develop a linear park along a new elevated transit expressway. The project puts the right-of-way into attractive and productive use, and includes landscaping, play areas, benches and shuffleboard courts. Located in a highly urbanized section, the project is expected to set an example for design of the rest of the system, and perhaps for other rapid transit systems.

In the Chicago area the Chicago and Northwestern

Innovative improvements in equipment, scheduling, and location of terminal points will be necessary to attract people off crowded highways and onto public transit.

John F. Kennedy airport in New York faces—on a massive scale—problem common to most major airports today as a result of constant increases air traffic.

Railway is providing profitable public transportation by considering its passengers' convenience at both ends of the line. Its "commuter cruises" take passengers by boat from the downtown rail terminal up the Chicago River to the east side of the Loop. A planned "Northwest Passage" will provide an enclosed, block-long passage served by escalators between the railroad's downtown passenger terminal and the "El" station at Clinton Street. Chicago's example suggests that better connections between modes of transportation, and greater use of the waterways available in many large cities would improve public acceptance of public transit.

Federal assistance to States and communities in fiscal year 1967 totaled $142 million for transit and $4.4 billion for highways. The availability of modern public transit as an alternative to the highway system can have decided esthetic, as well as social and economic benefits.

The Council recommends that modern public transit in its various forms be integrated into the transportation plans of all large urban regions, and be eligible for substantially increased Federal financial assistance.

AIR TRANSPORTATION

Since aviation has become a principal means for long distance intercity movement, its impact on the environment has increased. Aircraft, airports, and transportation to and from airports create separate but interrelated problems affecting environmental quality.

Public demand for air transportation already exceed the capacity of many terminals and leads to the introduction of larger aircraft before necessary facilities are ready to serve them. Every day more than 11,000 scheduled flights land and take off at the more than 500 commercial airports in the coterminous United States. More than 100 million passengers flew over domestic route in 1966. By 1970, 187 million passengers are expected and by 1975, 300 million. To meet this demand, th airline industry expects to spend $30 billion for new planes and ground facilities in the next decade. To handle present loads, planes frequently must circle nea crowded airports, waiting to land. Aircraft noise, once limited largely to the immediate vicinity of airports now covers large urban areas and even takes the form of jarring sonic booms. Public events, outings, radio and television broadcasts, even conversations in the home, are repeatedly affected. Anguished public complaints, measurable lowering of housing values, and millions of dollars of noise litigation suits are among the results. The prospect of supersonic transport planes threatens to aggravate the problem immeasurably. The various types now on the drawing boards have one thing in common: No matter how high they fly, the sonic boom that follows in their wake will be heard at ground level. Sonic boom damage to prehistoric cliff dwellings at Mesa Verde National Park, Colo., contributed to the Secretary of the Interior's appointment in 1967 of a panel to investigate the sonic boom problem.

Unlike some kinds of noise, control of aircraft noise calls for direct Federal action. In 1965, the President's Office of Science and Technology appointed an inter-

agency Jet Aircraft Noise Panel. At the panel's recommendation, a "qualitative systems analysis" of jet aircraft noise was begun, and the potential contribution of the Federal Government investigated.

In his 1966 Transportation Message, the President directed his Science Advisor to work with the Administrators of the National Aeronautics and Space Administration and of the Federal Aviation Agency, and the Secretaries of Commerce and of Housing and Urban Development toward alleviating aircraft noise near jet airports. This interagency effort, now led by the Secretary of Transportation, is directed primarily at finding out how noise problems can be minimized through aircraft engine and airframe design, flight operating procedures and techniques, land use restrictions near airports, and encouragement near airports of activities which are not seriously affected by aircraft noises and static interferences.

In 1967 the President directed all Federal departments and agencies to take explicit account of aircraft noise whenever relevant to any of their programs or to action in which they may participate, and to cooperate with the Secretaries of Transportation and of Housing and Urban Development in efforts to control and reduce the problems of aircraft noise. The Department of Transportation in 1967 established an Office of Noise Abatement.

The Congress is considering an amendment to the Federal Aviation Act to give the Secretary of Transportation authority to prescribe standards for noise caused by aircraft, including sonic boom, as part of the certification of aircraft.

Los Angeles "sky-lounges" are unique, though many cities are experimenting with more conventional helicopter service between the airport and downtown centers.

The Council recommends that the Federal Government be authorized to establish and enforce noise standards in the certification of aircraft.

Increasing use of air transportation creates other environmental problems. Aircraft contribute to air pollution. Transportation of passengers and baggage from cities to air terminals, and from terminals to aircraft often is slow, inadequate, and expensive on land-consuming highways; no United States city yet has a direct rail connection between downtown and its air terminal, and huge airport parking lots are needed.

In Cleveland, however, as a part of its comprehensive transportation program, a rapid-rail transit facility is being built to connect the city with its airport. With financial assistance from the Department of Housing and Urban Development, Los Angeles is studying a proposal to use "sky-lounges" to pick up passengers in the city, transfer them to helicopters and fly them to the airport terminal. An expansion plan for the Los Angeles airport proposes an underground terminal with bubble projections above the surface for access to airplanes.

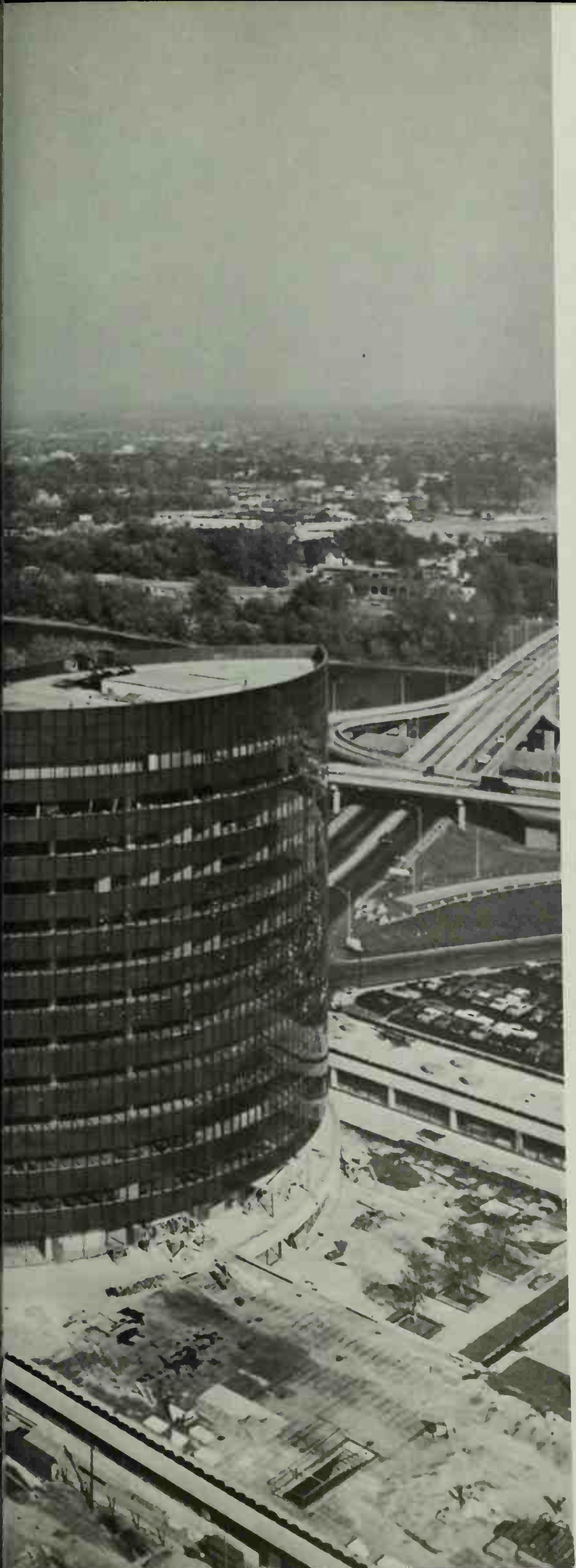
By pre-empting safe landing and take-off space near population centers, airports consume vast acreages of valuable land, and their access roads and utility lines invite the sprawl of housing tracts, industry, motels and shopping centers, sometimes in conflict with the land use plans for the region. With notable exceptions, such as the Dulles Airport serving Washington, D.C., the larger airports have had a strong negative impact on the landscape. Airports should be located so as to be as compatible with their immediate environment as pos-

The carefully planned and developed facilities of Dulles International Airport are located well out in the northern Virginia countryside.

sible. Some of the means available to protect airports and the public include purchase of development rights over abutting properties, purchase of excess land and resale or lease for compatible use with restricting covenants, buffer zone planning, and public land use controls. They are most effective when used at the time of development or expansion of an airport.

The Department of Transportation Act requires that certain measures be taken to avoid encroachment on scenic or recreation lands by transportation projects. This requirement applies to airports and air routes as well as highways, and in 1968 the Federal Aviation Administration issued procedures to comply with the Act.

There is a need for improved airport planning, conforming to national transportation policies as well as to regional, State, and local comprehensive plans.



Part II

SHARING RESPONSIBILITIES FOR ACTION

EVERYWHERE IN AMERICAN LIFE opportunities to improve the quality of the environment abound. The responsibilities for action belong to everyone, especially to those who can most influence environmental change for better or for worse: Public officials, manufacturers and other businessmen, landowners, environmental professionals, writers, broadcasters, publishers, researchers, teachers, and citizens who care.

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Government Action

ON THE NATION'S LANDS under direct Federal administration, the Federal Government bears full responsibility for maintaining high standards of natural beauty and related aspects of environmental quality. Elsewhere, wherever the Federal Government builds or maintains buildings, dams, highways, power lines, and other facilities, it has a responsibility to do so in ways that enhance and protect environmental quality.

When the Federal Government provides grants-in-aid, loans, credit, loan insurance, or other forms of financial assistance to State or local governments or private interests, high standards of environmental quality—equivalent to those which should govern Federal lands and facilities—should be made a condition of Federal assistance.

THE CENTRAL ROLE OF PLANNING

The first imperative of an environmental quality program at any level is a clear vision of the future, a specific statement of environmental goals. The initial questions must be: What kind of a neighborhood do we want? What kind of a city, State and Nation do we want? What constitutes a good environment for each area?

Too often government officials are so immersed in day-to-day problems that they have little time or energy left for the consideration of long-range goals. The resulting drift can lead only to environmental deterioration. The alternative is to decide goals for each area and embody them in a plan for action to which commitments of men and money are made.

The White House Natural Beauty Conference and a number of subsequent State conferences emphasized the central role of planning in achieving a better environment. New York State's conference, for example, found that:

> Sound comprehensive community, regional, and State-level planning is the essential groundwork for natural beauty programs.

And Pennsylvania's conference said

> . . . planning provides the basis for orderly and efficient utilization of resources on which all concepts of natural beauty must rest . . . In-depth comprehensive planning is the springboard from which natural beauty action takes off.

A city, county, regional, or State comprehensive areawide plan, often called a general plan, expresses goals and objectives regarding public and private land use, population distribution, and public services and facilities. It also provides an overview—a guide for coordination of many kinds of actions toward the objectives and goals—and a fund of knowledge and perspective to help officials and citizens decide the merit of specific proposals and projects.

The Federal Government will pay two-thirds of the cost of such community and State comprehensive planning. Grants are available through a "Section 701" program administered by the Department of Housing and Urban Development. Recent expansion of State and local planning as a result of this financial assistance has been striking. At the beginning of 1965, only 29 States had active statewide planning programs; at the close of 1967 there were 44. In 1965, comprehensive planning was underway in 192 metropolitan areas; at the close of 1967, in 247. In 1965 the number of city, county, and other local governments doing comprehensive planning totaled 4,714; three years later there were 6,110. The Federal investment in this program for the 1968 fiscal year is $45 million.

Some of these plans define long-term goals, schedule fixed-term objectives and actions, define responsibilities, and translate these into annual budget proposals for restoring, enhancing, and protecting natural beauty and related aspects of environmental quality; others do not.

In addition to plans for geographic areas, functional and program plans also provide vehicles for expressing environmental quality objectives and goals. State outdoor recreation plans, required to qualify for grants from the Land and Water Conservation Fund, are an example. Following the President's 1965 Natural Beauty Message, the Bureau of Outdoor Recreation, which reviews these plans, revised its requirements for them. As a result, they now must take into account the natural beauty values of the State's landscape generally as well as in and near designated recreation areas. Planning performance to date has varied widely among the States, but by 1967 at least a beginning had been made in every State to establish environmental quality goals on a systematic basis. An example of pioneering work along these lines is a 1966 report, "Environmental Quality and Amenity in California," which is a part of California's outdoor recreation plan and of the State's comprehensive development planning program.

With all the various kinds of plans at different levels of government, there are obvious dangers of conflicts among them. A State plan might provide for a highway through an area reserved for recreation on a city plan. A Federal reservoir might be planned for an area designated for urban expansion by a county plan. Such conflicts can be avoided by developing working partnerships among all levels of government, with each level participating within its competence in the preparation of each plan.

In his Natural Beauty Message the President called on Federal agencies to incorporate into all their planning programs "a conscious and active concern for natural beauty."

The Federal Government's new Planning, Programming, and Budgeting System offers Federal agencies a specific vehicle for defining goals and setting objectives for improving environmental quality.

The Council proposes that:

(a) *Federal agencies concerned with the physical environment adopt plans, which include long-term goals, fixed-term objectives, action schedules and budget allocations, to translate into action a conscious and active concern for natural beauty and related aspects of environmental quality; this applies to planning for functional operating programs as well as to land-use and development planning for lands under Federal management;*

(b) *Federal agencies which provide financial assistance to State, local, and regional agencies for planning encourage and assist them in incorporating into their plans natural beauty and environmental quality goals together with action programs to achieve the goals; and*

(c) *Federal and federally assisted projects be planned and carried out to the maximum extent practicable in accord with local and State comprehensive plans and environmental quality goals, and on the basis of the fullest possible participation of local and State officials.*

The Council recommends that State and local governments and regional agencies set goals for protection and enhancement of natural beauty and related aspects of environmental quality, and incorporate into their comprehensive planning programs and budgets measures for achieving their environmental goals.

THE NEED FOR CONSIDERATION OF ALL BENEFITS AND LOSSES

What is the value of a stretch of river in its free-flowing condition as opposed to the value of a reservoir which inundates it?

What is the value of a silent grove of trees or of a natural beach as compared with the value of a freeway that might be built there?

These are the kinds of baffling questions confronted by public works officials in deciding whether and where to build a dam or a highway. The same kinds of questions are posed by most development projects, both public and private.

The major difficulty in making such evaluations is that while detailed criteria and procedures have been developed to estimate the economic value of proposed projects, few or none have been worked out to measure the value of the natural or manmade features destroyed or affected by the projects. The value of a highway, for example, can be measured in terms of the savings to the motorist in time and in the costs of operating his vehicle. The value of a reservoir can be measured in terms of the water stored, or the electric power produced. These benefits can be estimated in dollars and compared with costs of land acquisition and construction. Under conventional cost-benefit analysis, if the economic benefits estimated in this fashion exceed these immediate economic costs, the proposed project usually is considered to be justified.

However, little attention has been given to the problem of measuring the environmental values that may be affected or destroyed—the scenic beauty of rivers or forests or parks—and comparing their benefits with those of the proposed projects.

The result is that natural beauty or other environmental values usually have been considered, if at all, only as an afterthought—only after the project has been determined to be feasible by conventional cost-benefit calculation. Project planners have seldom rejected an "economically feasible" project on grounds that it would destroy natural beauty.

Many of the recent violent and socially disruptive controversies over the location of freeways, reservoirs, powerplants and other public works projects might have been avoided if satisfactory criteria and procedures had existed to weigh environmental values along with the customary economic values. It is clear that the protection of the natural beauty of the American landscape requires the development of criteria and methods to evaluate the impact of development projects on the total environment.

Dr. Gilbert F. White, chairman of the National Academy of Sciences' committee on water, has summed up the problem concisely. Although his subject is water resource development, his observations apply equally to all types of public works projects and many kinds of natural resources development:

> The values that we put on water cannot be expressed entirely in dollars. We value water for the life it sustains, for its role in our economy, and for the lift it may give our spirits. We look upon it differently at different times and in different places. It has both tangible and intangible, both market and nonmarket values. If we are to be good stewards of the Nation's water resources, we must search for ways of realizing values held in varying esteem by different people in different places. As these values increasingly reflect a concern for improving the quality of our environment, the process of evaluation and of incorporating them into water-use decisions becomes more difficult.

The development of criteria and methods to evaluate the impact of public works projects on the environment can be considered in terms of the various systems which are involved. A community of any size consists of a number of systems, a residential system, a park system, an educational system, and industrial, agricultural, commercial, communication and transportation systems, as well as certain natural resource systems. The problem is to consider the effects of proposed projects within each system on all the other systems, the effect of a highway, for example, not only on a community's transportation system but on the other elements or systems making up the community's total environment.

There are two general methods of accounting for the impact of particular projects on the environmental systems; they may be used separately or in combination.

One is the assignment of dollar values to environmental costs and benefits.

The other is consideration of the informed judgments of environmental professionals, such as landscape architects, ecologists, park and recreation experts, as well as experts on water resources or transportation, for example. This can be done by using teams of such specialists to participate in project feasibility studies and planning from the beginning.

Since 1965 the dollar-value approach has been used by Federal agencies in estimating anticipated recreation benefits of proposed water development projects. A day of fishing at a crowded reservoir, for example, might be assigned a value of $1 per fisherman; a day of salmon fishing in a scenic wilderness area might be assigned as much as $6. The approach takes into account the quality of the available recreation experience, the setting, the relative scarcity of the opportunity, and the demand as indicated by what people have actually paid elsewhere for similar opportunities.

Another possible way of using assigned dollar-values is to calculate replacement costs. What would be the cost of duplicating elsewhere a park area that would be occupied by a proposed highway, for example? Such replacement costs would be considered part of the total costs of the highway.

In addition to the use of improved methods for ascertaining the dollar values of a project's environmental impact, the design team and expert-judgment approaches can be useful.

In Baltimore in 1967, for example, the Department of Transportation helped finance a Maryland State highway agency experiment in use of a design team to develop a major highway through a city. (This experiment is described in the Transportation Chapter, page 206.)

Also in 1967, the U.S. Army Corps of Engineers adopted a regulation calling for full consideration of natural beauty and other esthetic factors in planning water development projects. The policy calls for the Corps to recommend a development only when "convinced that the sum of the prospective economic and esthetic gains would exceed the sum of the economic costs and esthetic losses." (See page 164.) The policy states that decisions on esthetic values must, in the last analysis, be based on judgment. It directs Corps planners to seek the advice of "individuals whose accomplishments in art, architecture, and landscape architecture give their opinions weight with the general public."

In some cases public policies for environmental quality are established through legislative action. In 1966 the Congress included in the Act establishing the Department of Transportation a requirement that "special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife refuges, and historic sites." The Act specifies that the Department shall not approve Federal-aid highway projects which take land from these kinds of areas unless there is no feasible and prudent alternative. The Act also calls on the Department to develop measures to maintain or enhance the natural beauty of the lands traversed by highways.

As a consequence, in 1967 the Department began developing new criteria and methods that will go beyond conventional benefit-cost analysis for measuring the resource values specified in the Act. The Department expects to use the new approach to help resolve conflicts in transportation routes.

At the State level a series of laws passed by the California Legislature in 1965 illustrates how environmental factors are being increasingly considered. A previous requirement that all State highways be laid out on the most "direct and practicable" locations was repealed and the State Highway Commission was directed to report its reasons for adopting each particular route. These reports detail the consideration given to community, recreational, esthetic, park and historical values, and the route's relation to a comprehensive transportation system, as well as to driver benefits and costs.

Attempts need to be made to determine and evaluate in advance the total environmental impact of all proposed development projects, both public and private. It is desirable to grant government construction permits required for major private development projects only after an objective assessment of all the environmental losses or costs. Such an assessment would, for example, measure the wildlife and recreational value of a marshland proposed to be filled for a subdivision, or the scenic and scientific value of shoreline area proposed for the site of a powerplant. Conceivably such analysis might indicate denial of a permit, public purchase of the area in question, or approval of the proposed development with modifications to protect environmental values.

In his 1965 Natural Beauty Message, President Johnson declared:

> Beauty is not an easy thing to measure. It does not show up in the gross national product, in a weekly paycheck, or in profit and loss statements . . . (However) it is one of the most important components of our true national income, not to be left out simply because statisticians cannot calculate its worth.

The Council recognizes that there are important environmental values which may never be precisely measurable in economic or any other terms. However, a much greater effort needs to be made to define, analyze and evaluate, in a systematic and comprehensive manner, human environmental values and the qualitative environmental benefits and costs of proposed development projects.

In recent years the courts increasingly have recognized environmental values. For example:

- In 1965, the U.S. Second Circuit Court of Appeals remanded to the Federal Power Commission for further hearing the Cornwall Project licensed for construction by Consolidated Edison Company of New York City of a $167-million hydroelectric plant and related transmission structures at Storm King Mountain on the west shore of the Hudson River near Cornwall, N.Y. Scenic Hudson, a group of conservationists and residents of the nearby towns, had appealed the FPC orders. In considering the case, the court directed the Commission to hold new hearings which must . . . include as a basic concern

> the preservation of natural beauty and of historic shrines, keeping in mind that, in our affluent society, the cost of a project is only one of several factors to be considered.

The decision hinged on Section 10(a) of the Federal Power Act, which provides that the Commission shall license a project only if the Commission finds that it is best adapted to a comprehensive plan for improving or developing a waterway, for water power development and other beneficial public uses including "recreational purposes." The court held that the phrase "recreational purposes," "undoubtedly encompasses the conservation of natural resources, the maintenance of natural beauty, and the preservation of historic shrines."

- In 1967, the U.S. Supreme Court remanded another powerplant licensing case to the Federal Power Commission for further hearings and reconsideration. This case involved a license granted to Pacific Northwest Power Company to build a $200-million dam and generating plant, known as the High Mountain Sheep project, on the Snake River in Idaho and Oregon. The dam would back water many miles into scenic Hells Canyon. In its decision the court noted that "a river is more than an amenity, it is a treasure," and added:

> The need to destroy the river as a waterway, the desirability of its demise, the choices available to satisfy future demands for energy—these are all relevant . . . but they are largely untouched by the Commission. On our remand there should be an exploration of these neglected phases of the case . . . (including) the public interest in preserving reaches of wild rivers and wilderness areas, and the preservation of fish . . . and wildlife.

The Council proposes that Federal agencies develop improved criteria, procedures and standards for evaluating benefits and losses to all measurable aspects of environmental quality at federally aided or authorized projects and incorporate them into project planning, and encourage and assist State and local agencies to follow similar procedures.

BETTER ORGANIZATION FOR THE TASKS AHEAD

The White House Conference on Natural Beauty recommended that State governments set up central units to develop and coordinate policy among all State programs affecting natural beauty. Since, similar recommendations have been made at a number of the natural beauty conferences held in some 35 States. Natural beauty commissions or advisory committees already have been established in several States. For example:

- In Iowa, Governor Harold F. Hughes has appointed a 27-member State Natural Beauty Committee consisting of representatives of State agencies, local governments, and a wide range of private interests.
- In New Hampshire, Governor John W. King's Governor's Committee on Natural Beauty has stimulated formation of companion units in all 10 of the State's counties.
- In Wisconsin, the Legislature established the Wisconsin Council on Natural Beauty at the request of Governor Warren P. Knowles. It consists of State legislators, heads of State agencies, and citizen members—appointed by the Governor. The Council has a charter to "plan, coordinate, educate and motivate public and private agencies and persons to preserve and enhance Wisconsin's natural beauty."
- In New York, at Governor Nelson A. Rockefeller's request, the Legislature established a State Natural Beauty Commission. It coordinates State agency activities affecting natural and manmade beauty, advises local governments, inventories resources, and promotes esthetic considerations in State construction projects. The Commission consists of heads of eight State agencies.

In some States, comprehensive planning agencies and outdoor recreation planning and interagency coordinating units are beginning to broaden the scope of their environmental quality concerns. Valuable as such State coordinating and advisory units may prove to be, primary responsibility for environmental quality still rests with the elected legislators and the Governors.

Some States also are experimenting with local coordinating and advisory units.

- The New York Natural Beauty Commission is encouraging counties to establish counterpart units. In Rockland County, for example, the Board of Supervisors has appointed a County Committee on Natural Beauty. In addition to citizen members, it includes the county planning director, park commissioner, and a soil and water conservation district representative. There are subcommittees on waterways, trees, education, the townscape, roadways, parks and open spaces, and air pollution. The committee reviews county public works projects for the Board of Supervisors and is helping prepare a natural beauty plan as a part of the county's comprehensive plan.
- In Wisconsin, county natural beauty councils authorized by the Legislature are beginning to function. They are appointed by county supervisors to advise county officials and to encourage coordination.
- In New England, town conservation commissions have progressed beyond the experimental stage. These commissions support other local agencies by providing an overall view of the local environment, unhampered by such day-to-day demands as refereeing zoning disputes. On the basis of resource inventories, commissions can buy conservation and scenic lands, acquire scenic easements, and accept gifts of land in the name of the town. They also advise local governing boards on a broad range of environmental matters. The movement, started 10 years ago by citizens who wanted to save a tidal marsh in one Massachusetts town, has spread across the region. In Massachusetts conservation commissions now cover two-thirds of the State. In Rhode Island and Connecticut half the local governments have established conservation commissions. Since 1965 the idea has taken root in New Hampshire and Vermont. Maine has a different approach; there, the towns may establish park and conservation commissions which both manage lands and function as advisory commissions on the use of all land in the town.
- In Iowa, Tennessee, and Illinois county conservation boards provide services to local government similar to those supplied by New England's conservation commissions.

At the Federal level, the President in 1966 by Executive Order directed all Federal officials and agencies to "take such measures as will assist in protecting and enhancing the outdoor recreation resources and natural beauty of the Nation." To help carry out this directive, he established two advisory units:

- The President's Council on Recreation and Natural Beauty consists of seven members of the Cabinet and heads of three other Federal agencies. The Vice President serves as chairman. The Council reviews plans and programs of Federal agencies affecting environmental quality and outdoor recreation, encourages and assists coordination among Federal programs, and makes policy recommendations to the President.
- The Citizens' Advisory Committee on Recreation and Natural Beauty advises both the President and the Council on Federal agency coordination, and on local, State, and private activities. It evaluates progress made by the Council in carrying out its function and, as necessary, recommends actions to accelerate progress. The Committee consists of 12 citizens appointed by the President. In 1967, in its first annual report to the President and the Council, the Committee called for reforms in highway route selection criteria and procedures, greater use of available tools for making roads more scenic, and improvements in Federal interagency recreation planning.

At all levels of government there is need for public officials to give greater attention to natural beauty and other aspects of environmental quality in both their long-term goals and day-to-day operations.

To facilitate this, many Federal agencies are finding it advisable to establish or designate an official or unit to examine program operations for their implications for environmental quality. Such units should be staffed with professionals and a diversity of arrangements should be tried.

The Council proposes that Federal departments and agencies concerned with the environment establish or designate within their organization a focal point with responsibility for considering environmental quality aspects of program and policy proposals, and to promote coordination of policies, plans and programs so as to enhance environmental quality.

The Council recommends that State and local governments establish or designate within their governments focal points for environmental quality overview and action.

In addition to establishment of the President's Council on Recreation and Natural Beauty, a number of other recent actions have been designed to assist coordination of Federal programs affecting the environment. Since 1964 these have included establishment of the Water Resources Council, consisting of Federal officials with principal responsibilities in that field; establishment of the Department of Housing and Urban Development and of the Department of Transportation, transfer to the Department of the Interior of Federal programs for water pollution control, and establishment by the Office of Science and Technology of an interdepartmental Committee on Environmental Quality. Each of these actions has carried with it broad authority for coordination of environmental programs that previously had been fragmented. These, and similar actions taken recently by some States, are only beginning to realize their potential.

Potentially more significant proposals intended to further equip the Government to cope with environmental problems are being considered by the Congress and the Administration. These include proposals to create a new institution analogous to the Council of Economic Advisors. The suggested names vary—a Council of Environmental Advisors, or of Ecological Advisors, or a Council on Environmental Quality.

One bill before the Congress calls for a nine-man council which would report periodically to the President on the overall state of the Nation's environment. It would advise the President on national policies needed for long-range improvement of the national environment, including esthetic as well as economic and health aspects. It would assist the President in making a similar report to the Congress every two years. The proposals reflect a concern that there is no focal point in the national Government where the quality of the national environment and environmental trends are reported, analyzed, and evaluated comprehensively for the guidance of those who make the decisions that affect the environment.

THE NEED FOR BETTER DESIGN

Public agencies have an enormous opportunity to influence the environment favorably by incorporating quality design into public buildings and other construction and development projects they carry out or finance. In recent years, the obligation of governments at all levels to make the most of this opportunity has been widely asserted in legislation, policy directives, and requirements of various kinds. Still, too many public projects are characterized by stolid architectural design, incompatibility with the natural surroundings, inadequate landscape treatment, and little or no provision of physical amenities or use of art. And too many public projects still create new sources of environmental pollution, add to transportation problems, encourage urban sprawl, and destroy recreational, and scenic or other natural values. Similar problems result from poor design and unwise site selection of private construction and development projects benefitting from governmental financial assistance or franchise.

ESTHETIC OBJECTIVES

One method of achieving good design is to insist that esthetic objectives be considered from the beginning in construction and development plans.

- In 1967, for example, the U.S. Army Corps of Engineers took an important first step when it adopted a regulation calling for full consideration of natural beauty and other esthetic factors in planning potential water development projects. The Corps policy also permits recommendation of a potential development only when the Corps is "convinced that the sum of the prospective economic and esthetic gains would exceed the sum of the economic costs and esthetic losses." One example of a project where this policy is being applied is the Libby Dam and Reservoir in Montana. The external form of the dam and powerhouse are designed to blend the structures into their natural surrounding. Special efforts also are being made to assure that highway relocations, public recreation areas and other manmade features of the project harmonize with the natural environment. Construction specifications for the project emphasize prevention of water and air pollution and keeping site despoilment to a minimum.
- The General Services Administration has adopted principles for design of new Federal buildings which emphasize the finest contemporary American architectural thought, reflection of regional architectural traditions, and incorporation of fine art in building design. (See page 57.)
- The Bureau of Public Roads has specified that design and location of Federal-aid highways should give consideration to esthetic and other social and natural values, including recreation, conservation and residential character and location. (See page 201.)
- The New York State Council on the Arts in 1967 prepared legislation to promote esthetic standards on matters as diverse as burying of telephone wires, building codes, and design of State signs and other graphics.

PROFESSIONAL STAFFS

Another means of improving design is greater involvement of design professionals in planning public projects, including use of design teams composed of professionals trained in several disciplines. Public agencies can encourage this by establishing a design advisory office.

In 1966, the Secretary of Housing and Urban Development established a staff unit headed by an architect to advise him on how to improve the quality of design and planning of projects assisted by all the Department's programs. The Commissioner of the Public Buildings Service, General Services Administration, has appointed an architect to serve as his special assistant for design, and the Director of the National Park Service has appointed an Assistant Director for Design.

CONFERENCES ON DESIGN

Conferences which bring together government officials and professional designers can promote higher design standards.

- In 1965, a symposium on Environmental Design and Productivity was held by the General Services Administration for Federal officials involved in building programs. The one-week conference, led by private architects, engineers, architectural historians and anthropologists, studied relationships between public buildings and the total environment.
- In 1966, at a conference sponsored by the Department of Housing and Urban Development and the American Institute of Architects, the Secretary and other senior officials of the Department met with members of the design and planning professions to discuss how high quality design and planning could be reflected in all Department programs. In 1967, the Department brought together some 800 designers, transit officials, and manufacturers to discuss design and planning quality in urban mass transportation.
- In 1964 the State of California held a Governor's Conference on Good Design which brought together key State officials and many of the State's outstanding practitioners in the design professions.

DESIGN AWARDS PROGRAMS

Higher design standards also can be stimulated through awards programs.

- The Army Chief of Engineers, for example, in 1967 established an awards program to promote improvement in architectural and engineering design and conservation of natural beauty in conjunction with Corps water development and military construction projects. The winners are determined by juries composed of private architects, engineers, landscape architects, and other professional designers. In 1968 the Corps will initiate new categories of awards for achievement in family housing and urban landscape design.
- The Department of Housing and Urban Development sponsors biennial award programs for excellence of design in all HUD-assisted local programs and projects. A separate program for urban mass transportation projects was conducted early in 1968, and the general biennial program was again announced in the spring. Winners are recommended by juries of distinguished professionals in the fields of planning, urban design, architecture, engineering, and sociology.
- Awards programs for grounds improvement are conducted by both the Postmaster General and the Administrator of the Federal Aviation Administration.

DESIGN REVIEW BOARDS

One effective way for public agencies to improve the quality of the structures they build is to obtain review of proposed design concepts by boards of private professionals in design and related fields.

A number of Federal agencies have created such boards in recent years. Ordinarily, their function is to review design of structures to be built by the agency. Siting, orientation, relation to environment, landscape planting and accessories are often included, as well as design of the principal structure. Some boards also concern themselves with agency procedures for design and planning of projects.

Forms that the design review units have taken in the Federal Government vary.

- In 1965 the Federal Highway Administrator appointed a committee of architects, landscape architects, city planners, and structural engineers to help develop new criteria for urban freeway planning.
- In 1965 a Public Advisory Panel on Architectural

Services, composed of private architects, was established by the General Services Administrator to advise on selection of architects for Federal buildings, acceptability of proposed designs, and standards and procedures.

- In 1966 the Department of Housing and Urban Development created seven regional advisory committees on design and planning. Each Regional Office has the advisory services of an architect, landscape architect, planner, and engineer. The committees are helping to improve the design and planning capability of the field offices, which have major operating responsibility for Department programs.
- In 1966 the Army Corps of Engineers established architectural advisory panels to review major military building projects.
- In 1967 the Department of the Interior's Bureau of Reclamation appointed a board of consultants on design, site planning, architecture, landscape treatment, and use of art in its dams and other facilities in conjunction with water development projects.

Federal agencies have a responsibility to take every practicable measure to insure the enhancement of the environment affected by Federal and federally assisted construction projects. This responsibility includes achievement of high standards of design.

The Council proposes that Federal departments or agencies with responsibilities for Federal and federally assisted construction projects establish advisory design review boards to help achieve and apply higher standards of design which will enhance the environment affected by such projects.

Some local governments have established design review boards or commissions. Their progress is discussed in The City chapter.

THE NEED FOR INNOVATION

There are no final answers to the questions raised in this report. Like democracy itself, environmental improvement efforts must operate on a trial-and-error basis. The Federal system is ideally suited to encourage many approaches and to test the value of new ideas on a local basis. The Federal Government can encourage a diversity of local initiatives without committing itself prematurely to any one solution on a large scale.

To aid local activities that may be useful to the Nation as pilot projects, to try out new ways of solving common problems, Congress has authorized special demonstration grants, providing up to 90 percent of the cost in such fields as urban renewal, urban planning and some areas of pollution control. Such projects must give promise of demonstrating a new idea that, if it works, would be useful to other communities across the country. A basic requirement is that the lessons learned must be fully reported. Extension of the demonstration grant principle to other environmental fields, such as outdoor recreation and all aspects of pollution control, could be valuable.

Federal agencies can take the lead on multiple-purpose projects, perhaps involving a number of Federal grant programs. Some beginning efforts to do this are underway. The Department of Health, Education, and Welfare, for example, is experimenting with a Partnership for Health program. This permits local officials to combine a number of the Department's assistance programs in more flexible ways for a coordinated attack on environmental health problems. In addition, the Department of Health, Education, and Welfare has joined with the Departments of Labor and Housing and Urban Development to support creation of neighborhood centers in cities.

The Model Cities Program of the Department of Housing and Urban Development provides another guide for innovation. The Department is joining with some 63 cities to test a new strategy for nourishing the

Representatives of various levels of government and citizens meet to plan for Model Cities.

seeds of cooperation and quality in decaying neighborhoods. Rather than trying to fit the pieces of problem neighborhoods to single-purpose Federal-aid projects, the Model Cities approach is to marshal all applicable Federal and local aids and techniques and concentrate them on a whole neighborhood. The incentive to the cities is total Federal financing of the planning and 80 percent of the project cost.

The same total-attack approach might well be extended to natural beauty problems anywhere—in central-city neighborhoods, on the sprawling metropolitan fringes, in the countryside. The Model Cities Program strategy more widely calls for local interest and a Federal agency to act as the catalyst.

Federal land-managing agencies could directly test new techniques by carrying out and reporting demonstration projects on their own lands. More case histories of successful demonstration of new ideas that work faster and more widespread reporting of instructive State and local laws are needed.

In 1966, the Bureau of Outdoor Recreation established an information clearinghouse service for outdoor recreation and natural beauty; the service includes a quarterly periodical, Outdoor Recreation Action.

The Council proposes that Federal agencies take the lead in demonstrating improved methods to enhance natural beauty on Federal lands, encourage and assist such demonstration projects elsewhere, and apply to many types of environmental quality problems the Model Cities Program strategy of marshaling all applicable Federal and local resources and techniques and concentrating them on specific geographic areas.

The Council recommends that authority to make demonstration grants, with higher than normal Federal cost-share, be extended to all Federal grant programs that directly affect environmental quality, including programs for outdoor recreation and environmental pollution control.

Education

ELEMENTARY AND SECONDARY EDUCATION

Governments in themselves cannot achieve a high-quality environment; they can only provide mechanisms and opportunities. The basic need is for informed and active citizens who understand their environment and how it works.

Few of the Nation's schools are adequately preparing students to deal with environmental problems. Most schools give students courses in appreciation of literature, music and art. Science and social studies programs have been given a vast thrust forward in recent years through Federal aid from the National Defense Education Act. But few schools provide sufficient instruction in appreciation and understanding of overall biophysical environment. There is a considerable lack of well-conceived instructional material, adequate college training for teachers, and of a continuing system to provide information in this field to the schools.

Because most Americans live in cities, education in urban environmental problems as well as in traditional conservation matters is particularly important. A city child must rely largely upon the manmade world around him for what he learns to value.

Much of the Nation's environmental deterioration can be attributed to the fact that most Americans are ill-equipped by their education to understand and influence the forces acting on the immediate world around them. Most children growing up in cities have little firsthand knowledge of the natural environment and its processes.

The White House Conference on Natural Beauty emphasized the need for education; it recommended appointment of a study committee on conservation and natural beauty composed of leading educators to survey school curriculums and other educational efforts, and to make recommendations to the Office of Education, in the Department of Health, Education, and Welfare.

While this has not been done, some progress has been made:

- The Office of Education has made nearly 100 grants to school districts for innovative conservation education projects under Title III of the Elementary and Secondary Education Act of 1965. Assisted projects include one at High Rock Conservation Center, which involves 35,000 New York City students and emphasizes relations between natural resources and planned community growth. Another project involves a regional center at Perry, Fla., which helps students and teachers to understand interrelationships between man and natural resources.
- In some areas school grounds are used as outdoor classrooms. For example, some new elementary and junior high schools in Washington's King and Snohomish counties are located on sizable wooded areas, thus providing opportunities for nature study as well as enhancing community appearance. The idea was proposed by the King County Conservation Education Committee, a citizen group which sponsors workshops to train teachers.
- Some Federal agencies provide education opportunities on lands which they manage. For example, in 1966 at Land Between the Lakes—a recreation area between two reservoirs in Tennessee and Kentucky—the Tennessee Valley Authority opened a conservation education center. Teachers bring children from the fourth through ninth grades for week-long sessions.
- As as followup to the 1966 National Youth Conference on Natural Beauty and Conservation (see page 257), Science Research Associates, a branch of International Business Machines Corporation, is preparing a report on the experiences of thousands of young people in community improvement projects. The enthusiasm with which conference delegates went to work upon their return home indicates that many young people will respond to exposure to significant environmental problems. It is hoped that these experiences will

suggest better ways for involving school children in environmental problems.

- In 1967 the Secretary of the Interior appointed a task force to study feasibility of creation of a National Environmental Education Center as a cooperative venture by several departments.
- In 1967 The Citizens' Advisory Committee on Recreation and Natural Beauty urged that "environmental education be made a basic component of our school systems." Toward this end it recommended establishment of an environmental education unit within the Department of Health, Education, and Welfare, supported by a qualified staff representing the social, biological, and physical sciences. This unit, the Committee said, should work with States on Teacher training and materials for classroom use, assist in integrating environmental education into all areas of school curricula, and provide national information clearinghouse services. Early in 1968, as an initial response to the Committee's recommendation, the Department created the position of Coordinator for Environmental Education, in the Office of Education. This official has responsibility for coordinating the Department's environmental education projects, and works with universities and organizations to develop programs for training teachers.
- In 1967 The Citizens' Advisory Committee also recommended that the Federal land-managing agencies provide greater environmental education opportunities for young people on such Federal lands as national forests, parks, wildlife refuges, and military reservations—particularly near metropolitan centers—by establishing additional education centers, outdoors laboratories, and outdoor education programs.

The Council proposes (a) that Federal agencies concerned with research and education and with urban and rural environments exercise national leadership to improve communication and coordination in the field of environmental education, help advance curriculum development and research in this field, and assist colleges and universities in training specialists to work with State and local school systems in developing environmental education programs, and (b) that Federal agencies which manage lands or provide assistance in the management of other natural resources work with school systems to provide improved opportunities for firsthand environmental conservation education.

The Council recommends that State and local school systems establish environmental education programs.

ADULT EDUCATION

The Higher Education Act of 1965 provides a highly useful new opportunity for adult environmental education. Under Title I of the Act the Secretary of Health, Education, and Welfare makes matching grants to university and college extension programs for adult education projects which emphasize community problem-solving. A number of projects assisted by this program have dealt with environmental quality problems. For example:

- Bowdoin College held a three-day symposium on how to halt despoilment of Maine's coastline. The published proceedings were distributed and a striking collection of photographs, "As Maine Goes," was exhibited around the State.
- Fairleigh Dickinson University sponsored discussions in 50 communities on "The New Jersey Citizen's Role in Pollution Control."
- The University of New Hampshire provided technical training to new members of town conservation commissions including field demonstrations of how to inventory a community's natural resources.
- The University of Missouri held seminars for officials of local governments on land use planning in the urban fringe and Western Washington State College held workshops for public officials and citizens in four counties who are considering forming a regional planning council in northwest Washington.

- The University of Wisconsin Department of Landscape Architecture helped citizens of the city of Bayfield plan for orderly growth near the proposed Apostle Island National Seashore, and the University of Iowa Department of Landscape Architecture held symposiums on community planning for local officials and citizens.
- The University of Maryland worked with citizens of the town of Mt. Savage to prepare a natural beauty handbook for small communities.

EDUCATION OF ENVIRONMENTAL PROFESSIONALS

The broad scope of environmental problems and the increasing impact of technology require more professionals who are not narrow specialists but who are trained in a wide range of disciplines and understand the complex interrelationships of environmental forces.

Specialists will, of course, be needed, but in the future there will be a decreasing demand for the engineer who is qualified to build roads, for example, but is not equipped to understand and evaluate their social, ecological, and esthetic impacts. Fortunately, many professional schools recognize the new demands of an interrelated society and are beginning to require extensive multidisciplinary training for engineers, planners, and designers.

The interdisciplinary approach is also increasingly advocated and used by professional organizations:

- To prepare its 1967 report on protection of the natural beauty of the Potomac River Basin, the American Institute of Architects assembled a task force that included professionals in geography, landscape architecture, and water resources engineering.
- Six national professional organizations sponsored a meeting near Baltimore in 1967 on "Land, People and Homes—the Urban Development Challenge." Realtors, homebuilders, planners, architects, landscape architects, and civil engineers as well as local and State officials talked about "high development costs, waste of land, monotony of housing, and conservation of natural resources in the path of metropolitan sprawl."
- In 1966, the American Association for the Advancement of Science held a special interdisciplinary session on environmental quality.
- The American Institute of Planners brought together some 2,000 members of several dozen professions in Washington, D.C., in 1967 to explore the subject, "Environment for Man: the Next Fifty Years." Regional conferences are being held throughout 1968.
- In 1967, the National Association of Home Builders joined with the American Institute of Architects, American Institute of Planners, and the American Society of Landscape Architects in sponsoring a seminar with educators on "Educating to Design and Build a Better Environment."
- In 1967, the American Bar Association sponsored an institute on the law and esthetics—"Jurisprudence, Junkyards and Geraniums."

There is a need for Federal programs of assistance to higher education to encourage interdisciplinary education of professionals whose work will affect environmental quality.

The Council will encourage, in cooperation with the Department of Labor, other Federal agencies, and universities and professional societies, a study to determine the professional and technical, skilled and unskilled, manpower and education requirements necessary to meet future needs for environmental quality programs, and to recommend ways to meet the requirements.

As future manpower requirements for environmental improvement are examined, the needs and opportunities for involving disadvantaged youth and other low-income or relatively unskilled groups should be fully considered—particularly for work in their own immediate environment.

Research

SOUND RESEARCH IS BASIC to environmental improvement.

Some 15 years ago, Dr. W. T. Edmondson of the University of Washington began investigating biological activity in Seattle's 24-mile-long Lake Washington. The biologist wanted to find out how the increasing supply of nutrient materials from sewage was changing the lake's character. He obtained financial support from the National Science Foundation, a Federal agency.

In 1955 Dr. Edmondson discovered that the pollution had increased to the point that planktonic algae were increasing, water clarity and concentration of oxygen decreasing, and dissolved oxygen disappearing from the deepest water. He knew that when this had happened in other lakes of comparable size, they were soon converted to sludge-filled, stagnant, and darkened waters sustaining only very limited lower forms of life.

Dr. Edmondson reported his findings and public officials and citizen groups decided to act. Swimming in the lake was discouraged. After two elections—the first one was unsuccessful—the people of 10 cities voted to form a new kind of regional government under which the people of the region could act on various regional problems, including water pollution control problems. The Municipality of Metropolitan Seattle, "Metro," now includes 27 cities and sewer districts. Metro's $100-million construction program for sewage disposal has resulted in more thorough treatment and in diversion of effluent from Lake Washington.

In 1966 when Metro's last sizable treatment plant was dedicated, James R. Ellis, one of the leaders of the campaign to save the lake, said:

> The clearest satisfaction lies in proving the compatibility of an urban community with its natural setting. We are transients on these hills and shores and the waters are not ours to spend. Here we mark some proof that urban man can live and work in a beautiful land without destroying beauty.

Today, the beaches are open on Lake Washington. Dr. Edmondson predicts that improvement will continue and that even more significant changes will be noted by 1970. Lake Washington today is the largest lake in the world to be rehabilitated after serious deterioration. It also demonstrates that community action based on the basis of fundamental research can come to grips with problems of a deteriorating environment.

There is a need to consider the human factors in environmental improvement, as well as the biophysical factors. At the 1967 conference of the American Institute of Planners, it was suggested that current research in the social sciences would need to be expanded from 10 to 20 times if some basic urban problems are to be solved.

Little is known about the long-term effects of pollution, noise, crowding, and motion upon individuals. Much basic ecological information is needed. (See page 119.)

Federal environmental research efforts, both direct and through grants to States, universities, and foundations recently have been expanded:

- The National Science Foundation, the principal Federal agency which supports basic research, is the coordinating Federal agency for the International Biological Program, a new study concerned with the biological basis of productivity and human welfare.
- In 1967 the Federal Council for Science and Technology, composed of Federal agency science administrators, established an Interagency Committee on Environmental Quality. Initial emphasis is being given to air and water pollution problems.
- In 1967 the National Academy of Sciences and the National Academy of Engineering established an Environmental Studies Board to coordinate interdisciplinary efforts toward reducing or controlling pollution and other environmental problems.
- In 1967 the Smithsonian Institution sponsored a symposium, "The Quality of Man's Environment," as part of a year-long program emphasizing "what man knows about shaping and maintaining the environment which in turn shapes man and society."

Compared with what is needed, however, environmental research is in its infancy. Areas requiring intensive study include these:

- Methods of measuring and evaluating such aspects of environmental quality as the individual need for open space, the physiological and psychological effects of pollution, the results of varying population densities.
- Methods of conveying the results of environmental research to children and adults.
- The implications of the principles of ecology for such professional fields as law, engineering, architecture, urban and regional planning, medicine, and public and business administration.
- The use of the law as an instrument for environmental quality, including exploration of needs for establishment by law of new public rights and new concepts of the public interest.
- The motivation for effective citizen action at the community level with respect to environmental issues.
- The relevance of human population growth to environmental quality, with a view to developing greater knowledge of motivation for varying family sizes, providing more adequate family planning information, and exploring the possibilities of encouraging population dispersion.

The Council will encourage research to include identification of research needs and determination of research feasibilities and potential impacts of the research. Purpose of the research should include the following:

(a) *to examine human environmental needs,*

(b) *to help provide a basis for determination of national environmental quality goals and formulation of a comprehensive national environmental policy in accordance with those needs, and*

(c) *to assist Federal and other agencies in developing improved criteria, procedures and standards for cost-benefit analyses and other aspects of their programs consistent with national environmental quality goals and policy. The study would encompass both the impact of environmental quality on man and the impact of man on environmental quality, including the effects of population growth.*

The leaf of an ozone sensitive tobacco variety shows white spots characteristic of air pollution damage.

Private Action

Private action—by businessmen, industrialists, professionals and individual citizens—is the major force in determining the quality of the American environment.

BUSINESS AND INDUSTRY

Most Americans are experiencing the highest standard of living known to man. In November, 1967, as the Nation's population passed the 200 million mark, the gross national product was nearly $800 billion a year. Productivity was growing more than twice as fast as the population. New products, improved materials, and the comforts provided by the ingenuity of American industry apparently are unlimited, but often some of the unforeseen side effects of technological progress have been damaging to the environment: Unsightly industrial facilities, dumps, automobile exhausts and factory smokestacks fouling the air, and discharge pipes pouring noxious effluents into streams, rivers and bays.

In 1967 a panel of the Chamber of Commerce of the United States observed in a report on "The Need to Manage Our Environment":

> . . . Not all industry has carried out its citizenship responsibility. This responsibility must be accepted and the initiative taken in developing the new concepts, methods and technology needed for managing our environment.
>
> Every action and decision has its benefits and costs in terms of jobs, beauty, health, money, and other values. As a society and as individuals, we must consider the alternatives and make the commitments that will produce the greatest net benefit in managing our environment.

Businessman-conservationist Laurance S. Rockefeller has emphasized that in solving natural beauty problems business and industry will benefit not only the public, but their own interests as well. Like provision of proper working conditions for employees, improvement of the environment, he has said, "will turn out in the end to be just plain good business." He told members of the Congress of American Industry:

> Americans are becoming convinced that the quality of the environment we are creating for our children and grandchildren may be just as important as the quantity of our gross national product . . . that America need not be ugly and that we need not despoil it in the interest of short-term gains.
>
> This concern for the environment cuts across and includes a number of traditional fields—conservation, outdoor recreation, urban renewal, highway design, water and air pollution control, and simple good taste. President Johnson has dramatized them all by using the term 'natural beauty.'

It is within the province of the business community to seek better balances between economic and social benefits of resource development and manufacturing processes, and to advance frontiers of knowledge. Private enterprise can make plants and installations sources of community pride, and make products and processes more compatible with goals for a more beautiful country. Many members of the Nation's business community have adopted the goal of a better environment as a major policy concern. Replies from 441 companies in a 1966 National Industrial Conference Board survey, for example, showed that most of those whose operations tend to contribute to air or water pollution consider its abatement as one of their top community responsibilities.

Some key areas for leadership and action by private enterprise are outlined below, along with examples of what has been done to meet the challenge:

Places of business and industry can be made more attractive and compatible with the environment. The National Auto and Truck Wreckers Association urges auto wreckers to screen their yards, and provides information on various techniques of screening with vegetation and attractive fences. "Project Green Screen," a program of the Institute of Scrap Iron and Steel, encourages scrap processors to screen their yards. The Institute reports that some 36 scrap processors have done so.

Heavy manufacturing plants and surface mining operations present more difficult problems. However, *A park open to the public tops the five story parking garage of a privately built office building complex.*

near Tucson, Ariz., the Anaconda Company is trying to minimize adverse impact of waste dumps from its Twin Buttes Copper Mine; desert grasses, shrubs, and trees are being planted on the sides of the dumps with technical assistance from the University of Arizona, the Soil Conservation Service, and the Agricultural Extension Service.

On the outskirts of Spartanburg, S.C., Deering Milliken, Inc., has enhanced both sides of U.S. Highway 85 with trees, shrubs, and fountains as part of a new textile mill, research center, and computer facility. And south of Miami, the Florida Power and Light Company is developing a wildlife sanctuary and recreation area around a new nuclear plant.

More builders and manufacturers can improve the appearance of their products. Such improvements could range from buildings, power lines, and signs to food and drink containers. Toward this end, in 1967 construction industry leaders and design professionals gave major attention to "The Visual Community" at a Building Research Institute conference. Leaders of the packaging industry have called for it to take an "all-encompassing approach" to the problem of litter caused by its products after use by consumers. Formation of a packaging materials research council representing all facets of the industry has been proposed.

Businessmen can become leaders in public service for environmental beauty. In 1966, the Long Beach, Calif., Chamber of Commerce sponsored a clean-up, paint-up, fix-up week which stimulated the planting of 9,000 trees and replacement of abandoned streetcar tracks with planted center strips. The campaign was followed by a regional Congress of Beauty attended by representatives of 60 communities.

In Cleveland, Ohio, the Warner and Swasey Company, a manufacturer of machine tools, has taken the lead in supporting homeowners trying to halt neighborhood deterioration in its industrial neighborhood. The company is encouraging other business concerns to join in setting up a fund for this purpose, and began by rehabilitating a rundown apartment building.

Publishing and broadcasting companies have a particular opportunity and responsibility. In 1966 an extended campaign by the Milwaukee Journal played a key role in enactment of one of the strongest State water pollution control laws: The Wisconsin Water Quality Act of 1966. And the Louisville Courier-Journal's hard-hitting campaign for regulation of strip mining and strip-mine restoration led to enactment by the Kentucky Legislature in 1966 of a greatly improved surface mining law. The two newspapers shared the 1967 Pulitzer Prize for public service for these accomplishments.

Industry's philanthropic role can make the difference between success and failure in many causes. For one example, the 1966 National Youth Conference on Natural Beauty and Conservation was made possible by financial support from a dozen business firms and business-supported foundations.

Business philanthropy can be particularly important in projects involving disadvantaged youth and children. The Reliance Insurance Company of Philadelphia, for example, has given 150,000 trees for planting on school grounds in central-city neighborhoods across the country.

Improvements in many operations can decrease or eliminate pollutants. The success of Los Angeles in drastically reducing industrial air pollution is evidence that American industry as a whole can control pollution and still operate profitably. Many new plants include pollution control devices. For example, a new foundry built by the Chrysler Corporation in Detroit is notable for special devices that reduce physical impurities from escaping gases. The Ford Motor Company has also installed collectors that trap dust and smoke from foundries.

Air pollution is a major problem in primary aluminum production. The Aluminum Company of America,

for example, expects to spend in excess of $22 million for air pollution control for its facilities over the 5-year period beginning in 1968. Other producers have similar programs. Plants built recently have incorporated controls in the initial construction.

Industrial water pollution can be significantly diminished by private action. For example, a survey of 101 major chemical firms with 716 plants shows a capital expenditure of $233 million for waste control treatment, $36 million annual operating expenses, and about $5 million annually on waste treatment research. Ninety-five percent of the effluent now meets established standards for chemical products. As water quality standards are progressively raised, further action will be required.

Water pollution from steel production also is a major problem. In Mishawaka, Ind., the Wheelabrator Corporation is manufacturing rolled steel by a new process which eliminates the need for "acid pickling," a major cause of water contamination. The new process costs less to operate than the old.

In another industry, glass manufacturing, some plants in Michigan and Tennessee have converted to a more efficient process, which will reduce pollution by eliminating waste materials formerly generated by grinding and polishing.

Reduction of water pollution by the lumber industry

A coal mining company built an airstrip on land reclaimed from its surface mining operations, and donated it to the county.

is expected to result from a program set up by the Weyerhaeuser Company, which has established a "water laboratory in the woods" at Longview, Wash. Its goals are the discovery and investigation of basic scientific principles governing growth of aquatic plants, animals, and fish in fresh water streams. The results of this research are expected to have a bearing on future water pollution control measures in general, as well as the specific problems of the lumber industry.

The detergents industry has developed a biodegradable detergent which has minimized detergent-caused foam in domestic water supplies. However, biological studies of Lake Erie and other lakes reveal that phosphates which are still contained in the new detergents also are objectionable. Phosphates act as nutrients to algae, causing accelerated degradation of water quality. In order to cope with these continuing difficulties of detergent disposal the industry intends to develop detergents that are fully compatible with acceptable standards of water pollution control.

Crude oil and petroleum products constitute a water pollution threat from the producing fields through storage, transportation and refining to consumption. Through technological progress, newer refining processes have been developed which make improved products, require less chemical treatment, and produce smaller waste loads.

Emphasis on pollution abatement has stimulated agreements for joint industry-community waste treatment facilities. For example, Xerox Corporation has agreed to pay $3.5 million toward financing a $15 million sewage disposal system for its headquarters town of Webster, N.Y. The Corporation utilizes 20 percent of the capacity of the town's existing sewage disposal system.

The cost of pollution control is a major item of expense in many industries. It has been estimated that industry now spends from $100 to $200 million annually for water waste treatment facilities, but this figure will have to be raised to about $1 billion annually for the next five years to achieve reasonable goals.

Profit Opportunities: One of the single greatest opportunities for private enterprise to contribute to environmental quality lies in the development of automobile engines that do not pollute the air. Present control devices are capable only of reducing, not eliminating, the pollution from individual vehicles. Even if the best control devices available were to be universally applied, automotive pollutants would continue to befoul the atmosphere in increasing quantity as the total number of cars on the road becomes steadily greater.

In 1967 an advisory panel working with the Department of Commerce reported that while advances may be expected in electrically powered vehicles, the time required for their development and commercialization in the normal course of events probably will not allow their use on a large enough scale to significantly reduce air pollution for at least 10 years. The panel emphasized that the seriousness of automobile-caused pollution and the magnitude of future need for urban-suburban personal transportation require development of virtually nonpolluting transportation systems as promptly as possible. The panel's report, "The Automobile and Air Pollution: A Program for Progress," recommended increased Federal support for public transit research, development and demonstration programs in the interest of reducing air pollution, and called for a $60-million, five-year Federal program to support innovative developments in automobile energy sources and propulsion systems, emission control devices, and special-purpose urban cars. The Council agrees that Federal agencies should encourage and assist financially the development by industry of improved models of internal combustion engines and of electric batteries, fuel cells, or other low or nonpolluting power sources for automobiles, and also urges industry to expedite such programs. In 1967 the Department of Housing and Urban Development made a grant for a cooperative project of the University of Pennsylvania and General Motors Corporation aimed at developing a small car powered by a combination of electric batteries and a gasoline engine. In congested areas it would operate on its nonpolluting electric power.

Another opportunity for profit lies in the growing need for outdoor recreation in natural surroundings. Demand for outdoor recreation facilities is increasing several times faster than the population. This gap can be filled in part by private enterprise. Golf courses, ski facilities, hunting preserves, resorts and guest ranches are examples of profitable enterprises that rely on preservation of natural beauty. There is a special need for attractive recreational areas in or near large centers of population. Some private properties near big cities have been converted in whole or part to profit-making recreation enterprises, including large acreages of lawn, trees, playing fields, flower beds, picnic areas, playgrounds, swimming pools, and well planted open spaces, supplemented with attractive and profitable restaurants and snack bars.

A 1967 Bureau of Outdoor Recreation survey found a need to make more credit available for financing outdoor recreation enterprises. Lending institutions lack information about outdoor recreation economics, and potential developers need technical assistance in planning recreational enterprises. There is a need for government encouragement of private recreational areas for public use in surroundings of natural beauty. One means of such encouragement is to offer tax advantages. California, for example, has recognized that golf courses provide open space amenities for all residents of an area, even for those who don't play golf. Assessors are instructed by law—approved by the voters in a statewide election—to give a tax advantage to golf course owners by assessing the land on the basis of its current use rather than its potential for residential or commercial development. Another opportunity for developing recreation facilities stems from insurance requirements placed on new plant construction, in locations remote from adequate water sources. In most cases the construction of a nearby water reservoir enables the new plant to enjoy lower fire insurance rates. Some firms created small lakes near at hand that serve not only this important insurance requirement but a recreation advantage as well.

Other tools for encouraging private recreational development include the supplying of technical information to lending institutions and businessmen, government insurance of loans, and other tax or loan benefits contingent upon creation or preservation of natural beauty.

The Need for Research: A powerful spur to pollution abatement and other environmental improvements by business and industry often is Federal or federally sponsored research on new methods that are economically, as well as technically, feasible. The Air Quality Act of 1967, for example, authorizes a substantially expanded research program on the technology of industry's air pollution problems.

Another field in which new knowledge is needed is market research to find new markets for metal scrap, and development of means to maintain and expand present markets for junk car remains. Another area in which research is needed is the problem of transporting iron and steel scrap, particularly means by which scrap transportation costs could be lowered by improved methods of transport.

There is generally a need for Federal agencies to make better use of private enterprise's resources of technology and management to help develop better methods and better tools to control the unwanted effects of technology.

The Relevance of Tax Policies: Private action for environmental quality can be encouraged by taxation policies that make such action profitable. Too often taxes penalize beauty and reward ugliness. Valuable orchards and agricultural fields that could serve as greenbelts around metropolitan areas are taxed out of existence when assessed for their value as urban rather than farm land. In downtown areas beautiful buildings are often taxed more highly than their neighbors. A notorious example is New York City's Seagram Building. Owing to its high construction costs, this building—with its handsome fountained plaza and bronze sheath—was assessed by the city tax commission at several million dollars more than others of equal size but less distinguished architecture. The fact that much of the additional cost was due to the quest for beauty appears to have been lost upon the tax assessor.

The Seagram Building is not a unique case; most property tax assessment policies put such a penalty on beauty. In Providence, R.I., however, a first step has been taken in another direction. The city council has passed an ordinance which provides that homeowners may be exempt for five years from any tax increase on improvements they make to their property. The principal obstacle in the way of giving tax allowances for beauty is the fact that doing so reduces revenues of local governments that depend heavily on the property tax. There is an urgent need for research to develop new sources of local tax revenue.

In certain situations Federal income tax policies also penalize beauty and reward blight. For example, no matter how much a rental property is allowed to run down, no matter how many local building code violations have been lodged against it, a landlord can still claim full income tax depreciation.

There is a need for comprehensive study and action directed toward reconciling tax policies with today's environmental quality goals.

The Council will encourage, in cooperation with appropriate intergovernmental bodies, a study of the effects of Federal, State, and local tax policies on environmental quality with a view to recommending more effective incentives to private interests for environmental improvement.

THE FOUNDATIONS

Many of America's foundations are making an invaluable contribution to the Nation's future. Large and small, national and local, they plant seed money to test new ideas and generally do things that ought to be done that no one else is doing.

The scope of their research, education, and service devoted to environmental quality is wide-ranging:

- The American Conservation Association in 1967 joined with a group of utility companies in financing a study of ways the utility industry might contribute to natural beauty. The study is being conducted for the Citizens' Advisory Committee on Recreation and Natural Beauty by a task force composed of representatives of the utility industry, government regulatory agencies, and the Committee.
- The Conservation Foundation in 1966 published a book, "Future Environments of North America," based on a week-long seminar of experts in many environmental disciplines assembled by the foundation. In 1967, the foundation held a national conference on The Community, the College, and Conservation to encourage college and university leadership in helping communities solve environmental problems.
- The Ford Foundation's program includes grants to strengthen applied ecology and promotion of sound policies of resource use. In 1967, for example, it made a grant to the Chester County Water Resources Authority to test new methods of controlling land use at the fringe of Philadelphia's metropolitan area. Scenic easements will be purchased to help regulate development of a watershed to preserve both clean water and open space.
- Resources for the Future in 1966 sponsored a forum and produced a book on "Environmental Quality in a Growing Economy."
- The Sears-Roebuck Foundation, in 1965, began a Conservation Awards Program which recognizes outstanding achievements for conservation and natural beauty. Its Community Improvement Program—cosponsored with the General Federation of Women's Clubs—encourages community self-help projects.
- Urban America, Inc., announced its formation in 1966 with a conference on Our People and Their Cities, designed as a private response to the White House Conference on Natural Beauty. Urban America's operations include a Business and Development Center concerned with new ways in which private enterprise can help solve urban problems.

One of the most valuable services foundations can provide is critical review of both public and commercial activities affecting environmental quality. One foundation providing this service on a statewide scale is California Tomorrow, dedicated to "achieving greater public awareness of the problems we face in maintaining a beautiful and productive California." In a series of reports it has reviewed the impact on the landscape of government programs.

CITIZEN GROUPS

Even the best private or government efforts to achieve a quality environment cannot be effective without strong citizen support. In recent years the unprecedented growth of volunteer citizens groups dedicated to a better environment has made possible the current wave of action.

THE YOUTH CONFERENCE AND FOLLOW-UP YEAR

In 1966 organizations representing 20 million young people joined in sponsoring a National Youth Conference on Natural Beauty and Conservation. The 500 young men and women who met in the National Capital were Boy Scouts, Camp Fire Girls, Future Farmers, Future Homemakers, Girl Scouts, and members of Boys' Clubs of America, 4–H Clubs, Girls' Clubs of America, Red Cross Youth, YMCA and YWCA.

At their opening session Mrs. Lyndon B. Johnson told the young people:

> Beautification, natural beauty, conservation—we are searching for a word that will convey the enormity of the task. What we are really talking about is the life pattern of your generation, and of those to follow. What will your environment be? Will you live in communities that free the mind or imprison it? Will your cities be places to thrive in or merely to escape from? And what places will there be left to escape to?

The delegates drew up a program for action on parks and open space, roadside control, water and waterfronts, air pollution abatement, antilitter activities, urban beauty, and conservation education, with emphasis on follow-up projects in communities.

As a result of the conference, young people have been active throughout the Nation in such projects as these:

- In Greeley, Colo., Eddie Benavidez, 17, led fellow members of his Boys' Club in repairing and repainting underpasses and signs damaged by vandals. The project was supported by law enforcement agencies and the Chamber of Commerce.
- In Bridgeton, N.J., Don LaRue, a 17-year-old Future Farmer, led a project to redevelop a downtown alley as a pedestrian entrance to a shopping area. The project was assisted by the City Council and Chamber of Commerce.
- In New Bedford, Mass., Patricia Jane Whitaker, 16, and other YWCA members worked with Girl Scouts and students from New Bedford Vocational School to improve a park site overlooking the New Bedford-Fairhaven waterfront. The City Council and Exchange Club helped finance the effort.
- In Mellen, Wis., 16-year-old Arthur Anderson and other members of his 4-H Club worked with the Neighborhood Youth Corps to restore a run-down park in the center of town. Eight adult community groups helped. For years, adult groups had considered restoring the park but lacked a catalyst.
- In Bremerton, Wash., Stephen McCombs, a 17-year-old Red Cross Youth, persuaded school officials to introduce a new emphasis on conservation in the elementary schools. He began by showing every fourth-grade class in Bremerton how to make windowsill greenhouses to propagate new plants from cuttings. His aim, he said, was to give each child "something tangible that he could do."
- An evaluation of the year—to learn what kinds of projects and techniques are most successful and how young people want to handle them—is to be published in 1968.

NEW PATTERNS OF COOPERATION

Their joint sponsorship of the Youth Conference on Natural Beauty and Conservation marked the first time the Nation's major youth organizations had joined in this kind of cooperative effort on any subject. Similarly, adult citizen groups that have not previously made common cause also are forming new patterns of cooperation. For example:

- The Colorado Open Space Coordinating Council illustrates the trend. Formed in 1965, the Council now includes 21 groups ranging from the Cutthroat Chapter of Trout Unlimited and the Colorado Mountain Club to units of the American Institute of Architects and Planned Parenthood.
- In 1967 the Colorado Council helped 14 groups in neighboring Wyoming establish the Wyoming Outdoor Coordinating Council, and is assisting efforts to form comparable councils in New Mexico, Utah, and Nevada.
- In 1966 a statewide Planning and Conservation League of California was formed by members of a dozen citizens groups in that State, to work with the Legislature to implement their programs. A League representative is registered with the Legislature as a lobby. In 1967, the League reported, the Legislature enacted 14 League-supported measures.
- In Washington State in 1967 some 30 organizations, including the Washington Education Association and the Seattle Junior Chamber of Commerce as well as conservation and planning groups, established the Washington Environmental Council. Its founders said they were inspired by the example of the Planning and

Conservation League of California.

- Private groups in Virginia, Maryland, and West Virginia in 1967 organized a Potomac Basin Center dedicated to "citizen involvement in decisions determining the destiny of the Potomac River Basin, and to the citizen's right to full knowledge about the issues in question."
- The Institute of Scrap Iron and Steel has joined with the Men's Garden Clubs of America in a joint program, called Project Green Screen, to screen junkyards.
- Citizens for Clean Air, started by a group of citizens in New York City who wanted to do something about the air they breathe, has grown to national stature because of the success of their public information techniques in stimulating citizen support for local air pollution controls.

Across the land other citizen groups have employed many devices to dramatize their causes. Petitions, rallies, contests, festivals, parades, benefit dinners and dances, specially-proclaimed "weeks" and "days" all have been used along with intensive educational programs, and tours of blighted areas all leading to direct action by concerned citizens to carry out specific projects.

These have ranged from the clean-up of thousands of yards, streets, and vacant lots to expression of support for new measures of conservation, urban renewal, and pollution control.

Citizen groups have demanded and obtained regulation of noise, signs, and litter and stronger enforcement of existing regulations. In community after community, citizens have planted trees and flowers at city entrances, on school grounds, along the streets. Concerned citizens have led the way in bringing new parks, malls and plazas, fountains and sculpture, botanical gardens, natural areas, and roadside rest areas. Programs of historic preservation have been strengthened remarkably. Some community groups are beginning to evince great interest in architectural quality, urban design, and regional planning.

For its part, Government has a responsibility to seek out and facilitate citizen understanding of and participation in public plans, programs, and projects that affect the environment.

The Council proposes that Federal agencies concerned with the environment encourage and facilitate public participation at all stages of planning and development, including the formulation of environmental quality goals and objectives, and that Federal agencies which administer grants-in-aid and other assistance programs encourage State and local governments to take comparable actions.

The 1965 White House Conference on Natural Beauty brought stimulation and encouragement to the Federal Government, to other levels of government, to business and industry, to youth organizations, and to a host of citizen groups. The 800 private citizens who attended the Conference supplied new ideas, new directions, and new enthusiasm to the total effort to improve the American environment. The White House Conference on Natural Beauty provides a sound base for an expanded public and private effort to cope with fundamental environmental problems. There is a great need to commit national resources on a coordinated basis to this task. The first step should be to win agreement on broad goals and the establishment of policies that lead to those goals.

The Council recommends that specific environmental goals and comprehensive national environmental quality policy be formulated by a White House Convention on Environmental Issues. The members of the Convention should be policy-level representatives of major public and private groups whose activities significantly influence the quality of the environment. The Convention should consider and adopt by formal vote recommendations on key environmental quality policy issues. These should be useful guides for public authorities, corporate institutions, and other appropriate associations and groups.

GIMBEL BROTHERS WAREHOUSE

Part III
SUMMARY

IT IS EVIDENT FROM THE SCOPE OF THIS REPORT that the increasing concern of Americans about their environment has profound historic significance. Since the beginning of the Industrial Revolution, the people of the United States have achieved progressively higher standards of living through the increasing division of labor and the continuing development of a mechanical technology. By specializing in the performance of a particular task an individual was able to achieve a high degree of proficiency. The jack-of-all-trades gave way to the highly skilled technician.

The overall result is a system of large-scale industries organized for the production of specialized goods, and government agencies organized to perform specialized services or construct specialized public works. The consequence is a cornucopia of goods and services raising the standard of living for most Americans to hitherto undreamed levels of material abundance. Yet, the sum of all these specialized activities of the specialized industries and public agencies fails to satisfy certain basic human needs—particularly the need for an orderly, balanced, attractive environment. As the specialist—technician, industrialist, or administrator—increasingly narrows the focus of his work to achieve greater efficiency, he tends to a certain narrowness of vision. In concentrating on the immediate purposes of his own work, he gives insufficient attention to the fact that certain byproducts of his activities are having a harmful effect on the common environment. The industrialist, for example, is so intent on turning out increasing quantities of goods that he neglects the fact that his factory also is fouling the public air and waters. The government official charged with building roads is so concerned with developing safe, efficient means of moving traffic that he fails to calculate the damaging impact of highways on neighborhoods or farms or scenic lands.

On a small scale and in a largely rural society, these unintended side effects of specialized activities may have been tolerable. But as the United States has become increasingly urbanized, their cumulative results have become steadily more damaging, despoiling the air that men breathe, the water they drink, the cities in which they live, the land and the natural resources they need for physical and spiritual sustenance. And with all these labors has come a din that jeopardizes the environment. Almost on a par with fouled air and water, we are now also plagued with noise pollution.

The effort to enhance and maintain the beauty of America arose as a reaction to this deterioration of the American environment. A cardinal purpose of the effort is to induce specialists in all areas to broaden their fields of vision. Its goal is to enable them to recognize the supremacy of broad human purposes over the immediate purpose of a particular project or process, and to assume responsibility for the effects of their specialized activities on the total environment.

In calling for a new role for the specialist, the quest for environmental quality represents a departure from the historic trend toward narrowing fields of concern. It also calls for a similar broadening of vision by the individual as citizen and his participation in a national effort to create a high quality environment.

This report describes some of the progress in this direction. However, in most areas environmental deterioration continues under the impact of unprecedented population growth and uncoordinated technology. The Council therefore has adopted and recommended a number of measures to reverse the deterioration and raise environmental quality.

THE NEIGHBORHOOD

The Nation's environmental problems are both most serious and most visible in the old, blighted neighborhoods in central cities where residences are deteriorating and where recreation areas and other open spaces are in critically short supply. On the basis that the quality of any neighborhood depends, ultimately, on the pride that the residents take in their neighborhood and their involvement in it, the Council adopts a policy for the expansion of resident participation in all federally assisted neighborhood improvement and development projects—consistent with the strategy of the Model Cities Program.

In the new developing neighborhoods in the suburbs, natural beauty is too often the victim of the bulldozer. The need for parks and open space is frequently ignored while look-alike houses are crowded together in subdivisions. The Council recommends that local and State governments require that subdivision developers provide for adequate open space and preserve natural features such as streams and trees. A comparable requirement as a condition of Federal financial assistance to developers is adopted as Council policy. The Council also calls for Federal and local regulations which encourage innovations in siting and design of buildings and streets.

DOWNTOWN

The downtown districts of American cities also are experiencing the blighting effects of obsolescence, congestion and ugliness. The Council reviews the variety of steps being taken across the country to combat downtown decay, and calls for Federal buildings and grounds to set standards of excellence for architectural and landscape design in their communities. Parking lots, in particular, are viewed as frequently detrimental features in the downtown environment, and the Council agrees that its agencies shall demonstrate ways of improving the appearance of parking lots related to federally owned facilities.

The Council finds that too little is known about the specific ways in which downtown blight affects the commercial health of downtown areas and will encourage a study to determine the importance of esthetic quality to the business stability of the downtown district.

In many American cities that front on a river or other large body of water, the deteriorating waterfront is often the least appealing part of the city instead of the major attraction that it could be. The Council reports a wave of interest in urban waterfront rehabilitation and recommends authorization for a cooperative Federal-State-local program of urban waterfront restoration that emphasizes scenic and recreational opportunities.

THE CITY

Turning to the city as a whole, the city's political, economic, and social institutions, and its public powers, help shape its physical appearance and resolve environmental issues limited to its confines.

These issues include:

- Public and private signs and lighting, which should be viewed as a coordinated system blending their functional requirements with architectural balance and visual appeal of the cityscape;
- Litter, a common sign of urban blight, which community pride could largely prevent, through public education, private owners' sense of responsibility, higher maintenance standards and better provision of disposal facilities, as well as enforcement of reasonable laws; and
- Noise, which seriously affects the quality of urban life, and requires more determined efforts on the part of manufacturers and builders, designers and planners, public administrators and legislators, to reduce its impact.

The quality of the city as a whole also can be enhanced by the inventory and protection of natural and historic features, and their integration with design of the city. Community tree planting programs should be expanded, and antiquated building codes and zoning ordinances thoroughly overhauled; the Council calls for expanded Federal assistance for these purposes.

THE METROPOLITAN REGION

As cities coalesce into a metropolis and the metropolis merges with others to become a megalopolis, many environmental problems become unmanageable within political boundaries drawn up in another age. Some environmental problems can only be approached on a regional basis.

Among these problems are the steadily mounting wastes that are poured into the air, into the water and onto the land. The Council urges that all pollution abatement efforts be operated as integral parts of comprehensive regional environmental management programs including air and water pollution control and solid waste disposal, and in coordination with land-use planning. The Council emphasizes the importance of esthetic benefits as a basic objective of all pollution control programs.

The Council proposes that Federal agencies utilize erosion control techniques, standards and requirements such as those developed by the Federal Water Pollution Control Administration and the Soil Conservation Service when conducting or supporting development projects that involve disturbance of the soil. The States are urged to set intrastate water quality standards at least comparable to those established on interstate and coastal waters under the Water Quality Act of 1965.

The Council recommends a new program of Federal grants to stimulate the establishment of regional solid waste disposal systems that emphasize reuse of waste materials, and that are integrated with air and water pollution control and planning for recreation areas and other uses of land.

The alarming disappearance of potential park and other recreation lands in and around metropolitan areas and the continual escalation of land costs make it imperative to secure promptly the open space land that will be required for the future. To this end the Council recommends that available open space and recreation funds be devoted primarily to acquisition or reservation of new areas rather than immediate development of existing areas.

To assist local and State agencies to acquire land for future environmental development needs, the Council will encourage a national study of the feasibility of a revolving fund from which interest-free advances could be made to public agencies.

The Council also directs its member agencies to consider techniques to secure the public benefits of open space at less than the cost of full acquisition, and to use them where they promise success, and to encourage and assist local and State experimentation with use of options and other methods for securing lands needed for future public purposes.

Recognizing the possibility that the development of new and well-planned communities may help alleviate urban problems, the Council recommends several kinds of Federal incentives to encourage new towns and cities that are properly located and designed. The impact of major new Federal installations on the areas where they locate has led the Council to call for the creation of a Federal interdepartmental unit to work with local governments to help assure development of high quality urban environments in areas affected by these installations, and to encourage the development of planned new communities in connection with them.

Some of urban America's most critical environmental functions encompass entire metropolitan regions. Yet effective coordination and decisionmaking for such regions as a whole remains to be demonstrated. Many "councils of government" have, however, emerged in recent years, and in spite of their limited functions to date, they are encouraged as a step toward agencies with powers to cope with the environmental quality of whole metropolitan regions. The Council urges the States to foster creation of such agencies. The Federal Government, too, has a responsibility in preventing or limiting further environmental deterioration of metropolitan regions through insistence on conformance to metropolitan planning when approving federally assisted projects.

The functions performed by land and water, air, plants and other organisms in the natural environment need to be better understood and incorporated in the urban development process. Demonstration of the application of ecological analysis to regional planning and development decisions should be encouraged by Federal agencies.

THE COUNTRYSIDE

The greater part of the scenic beauty of America still lies beyond the urban limits—in the countryside, in the hills and forests and wildlands of rural America. Even here, however, the quality of the environment is jeopardized by population pressures and expanding development.

The land will carry the blemishes of soil erosion and become less fertile until conservation measures are more widely practiced. Despite increasing understanding of the side effects of pesticides, the improper use of agricultural chemicals still pose threats to humans as well as to fish and wildlife; but better monitoring of food and water supplies is improving protection.

Opportunities for urban people to enjoy outdoor recreation can be increased through the multiple use of agricultural lands for recreational purposes—especially near cities. The Council recommends incentives to encourage private recreation facilities that preserve natural beauty, and to encourage the owners of scenic farmlands to maintain them.

Few private landowners of small acreages have either the know-how or the incentive to manage timberlands so as to present esthetically pleasing views to the traveling public. Federally assisted cooperative programs to provide incentives and assistance are recommended.

The surface-mining scars which pockmark the continent have become symbolic of the need for better land reclamation. Federal agencies need new authorities to help the States restore past damage, and to prevent future surface mining damage through the establishment of reclamation criteria and standards.

To meet the growing dissatisfaction with the environmental intrusions of utility lines, the Council recommends enactment of legislation to require certification of high-voltage transmission line routes by the Federal Power Commission, public hearings for proposed utility rights-of-way, and combined use by utilities of common corridors.

Orderly rural development in the face of rural population depletions, coupled with increasing demands for natural resources, requires planning. To help rural counties do this, the Council recommends Federal financial assistance for increased multi-county planning in rural areas.

WATER AND WATERWAYS

To prevent needless destruction of valuable resources as a result of Federal water development projects, the Council proposes that Federal agencies protect or restore the natural channels of streams, together with plant and animal habitats, wherever possible.

Few American rivers remain undeveloped, but they offer unparalleled scenic and recreational values. The Council recommends authorization of a national system of wild and scenic rivers and urges the States to establish complementary river protection systems.

Superfertilization from agricultural land runoffs and accelerated aquatic plant growth threaten the life of many small lakes. Council agencies are urged to expand coordination efforts toward protecting scenic and recreational values of both natural and artificial lakes.

The Nation's wetlands and estuaries are being lost to drainage or filling, even though they afford distinct beauty and act as the home for a myriad of wildlife, a buffer strip between land and sea, and a hydrological sponge. Systematic review and permit procedures by State natural resource and recreation agencies can best protect valuable wetlands and estuaries from destruction.

Much of the Nation's ocean and Great Lakes coastlines are being locked up to public access and enjoyment through rapid housing and commercial development. The Council calls for focusing of public attention upon the threats to natural beauty values of shorelines.

RECREATION AND WILDLANDS

Parks and other public outdoor recreation areas are strained to accommodate today's demands. Acquisition of more recreation lands closer to where most Americans live is needed. The sources of financing for the Land and Water Conservation Fund need prompt expansion.

State agencies responsible for wildlife management are urged to place more emphasis on nongame species of wildlife, especially in and near urban areas.

Study of natural environments can lead to better understanding of man's needs, and representative examples of natural areas should be protected for this purpose. The Council recommends grants-in-aid to help the States establish natural area systems. Natural area systems on Federal lands also should be strengthened.

Opportunities for recreational walking and cycling are becoming increasingly restricted for most Americans. The Council recommends enactment of legislation to establish a nationwide system of trails, and recommends that States and cities develop compatible systems of park and forest trails and metropolitan area trails.

Wilderness areas are necessary to satisfy human needs for solitude, naturalness, and wildness. The Council supports protection of the Wilderness Preservation System and meaningful additions to it.

TRANSPORTATION

The impact of new highways on the landscape in recent years has called public attention to the special role of transportation in affecting the quality of the environment.

To help make transportation systems compatible with the landscape, all federally assisted highways and other transportation projects should conform to comprehensive transportation plans that give due regard to environmental quality considerations.

In addition, the Council recommends that interagency committees be set up by State governments to advise on location and design of transportation facilities, that highway routes avoid encroaching upon outstanding scenic areas wherever possible, that increased Federal aid be available for public transit, and that, as a means to better recognize local environmental values, the public be involved in the route selection through early and impartial hearings.

SHARING RESPONSIBILITIES FOR ACTION

All types of public works and government-aided development projects have a significant impact on the landscape, and the Council proposes special procedures to insure that environmental considerations are a part of all planning for these projects.

For example, analysis of the feasibility of all public and publicly authorized development projects should include systematic means of accounting for the benefits and losses to natural beauty and other aspects of environmental quality. These projects should be located and developed in accordance with comprehensive planning for the area involved.

The Council also proposes that each governmental agency concerned with the environment develop environmental quality goals and procedures, and establish special overview units to be concerned with their formulation and application.

Education can help citizens understand how their environment is formed, how it works and the possibilities and problems involved in environmental change. Few schools, however, prepare their students to understand the physical environment. The Council recommends authorization for environmental conservation education and research programs within the Federal Government, to stimulate new levels of environmental education. State and local school systems also are urged to establish such units.

Little is known about the manpower requirements needed to fulfill future environmental quality programs. The Council, therefore, will encourage studies to determine future professional and technical manpower needs, in environmental fields and to recommend ways to meet these requirements.

Great voids exist in social and scientific knowledge about the relationships of man and his environment. The Council will encourage research to help determine human environmental needs, provide bases for environmental quality goals and policies, and recommend criteria for Federal standards in environmental quality programs.

Private actions that improve environmental quality can be encouraged by tax policies that make such actions profitable. Too often, however, taxes penalize beauty and reward ugliness. The Council agrees to encourage, in cooperation with appropriate intergovernmental bodies, a study of the effects of Federal, State, and local tax policies on environmental quality with a view to recommending more effective incentives for environmental improvement.

Citizen understanding and participation in public plans, programs, and projects that affect the environment is another kind of private action that government has an obligation to stimulate. The Council determines that encouragement of public participation at all stages of environmental planning and development, including the formulation of environmental quality goals and objectives, will be a policy of its member agencies.

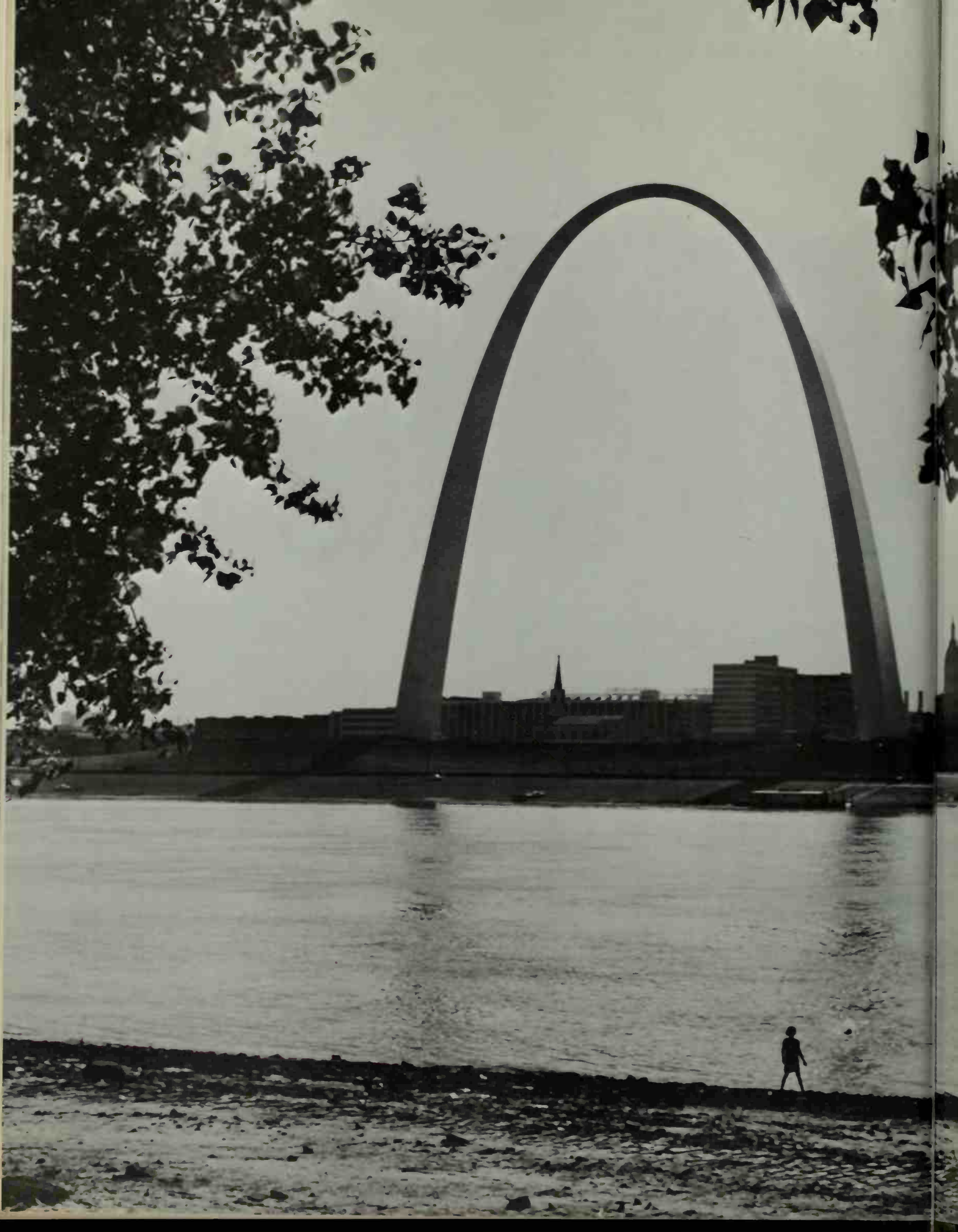
Finally, the Council proposes the convening of a White House Convention on Environmental Issues to develop recommendations for comprehensive national environmental quality goals and a comprehensive national environmental quality policy.

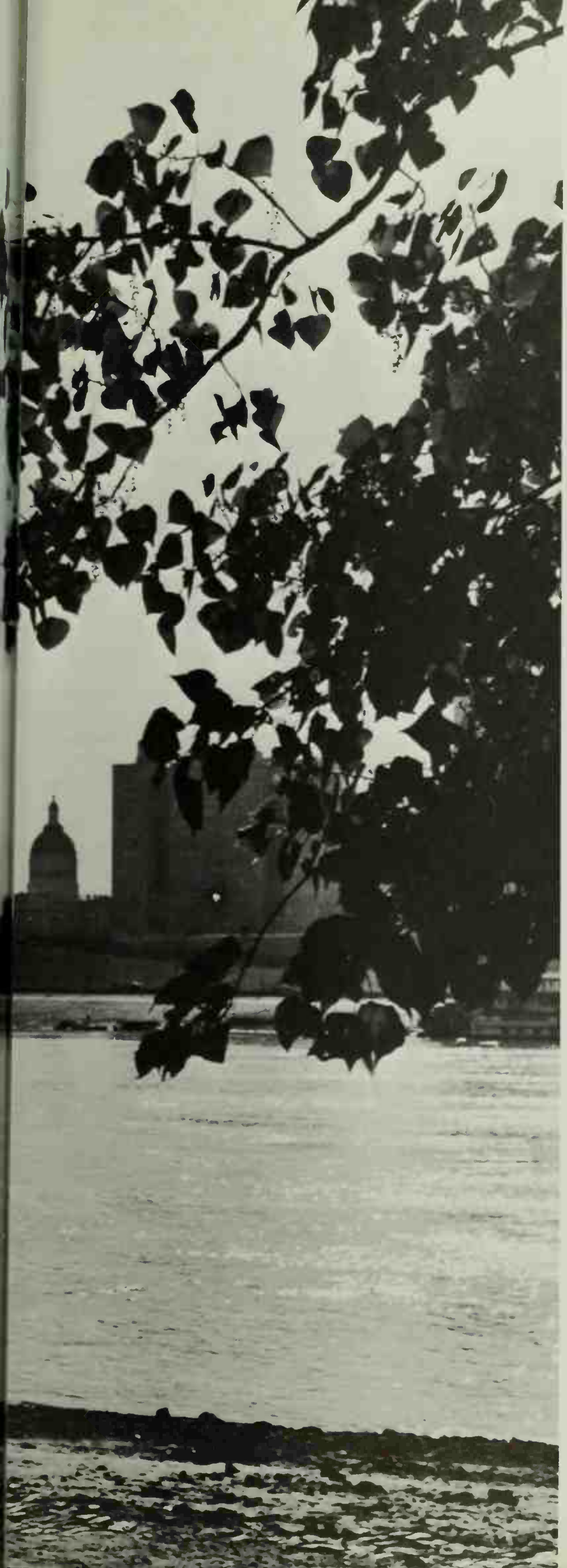
The Council is under no illusion that such measures as these will be easy to attain or will offer any final solutions. They are merely further steps on a long road that stretches beyond the foreseeable future. These steps cannot be even partially successful without the wholehearted backing of concerned Americans willing to devote their energies to specific local projects. This report contains scores of examples of recent successful citizen action all across the Nation.

During the last few years new tools for action have been created. Techniques of success have been tested. Obstacles have been identified. As a result of these basic advances there is now an opportunity for a vast expansion of the natural beauty effort.

It is the Council's hope that this report, by reviewing the progress that has already been made and indicating an agenda for action, will stimulate further activities by increasing numbers of Americans until the day-to-day surroundings of every American have been improved—until the impact of the renewal of the American environment has been felt in every part of the land.

A high school conservation group works at streambank improvement.





Part IV

KEYS TO ACTION

THE KEYS TO ACTION offered here are grouped into two categories: A. Publications and Films Which Can Help; B. Agencies and Organizations Which Can Help. The keys of the first section are readily obtainable from libraries, stores or by mail from listed sources, for use at home by individuals or groups. With today's problems as complex and interwoven as they are, the citizen needs some basic information just to ask questions. The titles on these lists can provide initial help in choosing which problems to face and determining what goals to set. They also provide facts and figures to buttress action efforts and win public support. The bibliographies included in many of the volumes listed, and the agencies whose publications and films are represented will provide leads to further helps.

The second set of keys—agencies and organizations that can help—starts with public agencies: First, representative suggestions at local levels; second, contacts of the State agencies either designated by the Governor or officially recognized as responsible for natural beauty matters; and third, listings of those Federal departments and agencies which have major programs or functions directly applicable to the problems outlined in the Report. Private organizations make up the final category, (1) those with individual members; (2) those with private or industry support, or group but not individual memberships; and (3) a sample of those professional organizations whose individuals or local chapters may be able to help.

Inclusion of organizations, publications and films other than those of the Federal Government does not indicate official endorsement, nor are the listings intended to be exhaustive. Only agencies and organizations which provide services having a direct effect on the environment are included.

The keys offered here are by no means the only ones. They were selected not only for their own particular qualifications for helping, but also to suggest similar kinds of agencies, organizations and groups which may be close to your areas of action. Space precludes listing the countless service clubs, social clubs, youth clubs, church groups and others at local and national levels who can join in helping.

These, then, are the keys.

BOOKS AND PAMPHLETS WHICH CAN HELP

Grouped alphabetically by title under the following headings:

Community Action *page 271*

CITIZEN GROUPS *page 271*
YOUTH GROUPS *page 271*
BUSINESS AND INDUSTRY *page 271*
LOCAL GOVERNMENT *page 271*

The Environment *page 271*

The Urban Environment *page 272*
HOUSING AND NEIGHBORHOODS *page 272*
DOWNTOWN *page 272*
OPEN SPACE *page 273*
WATERFRONTS *page 273*
HISTORIC PRESERVATION *page 273*
NOISE *page 273*
COMMUNITY AS A WHOLE *page 273*
PLANNING—URBAN *page 273*
PLANNING—REGIONAL *page 273*
METROPOLITAN REGION *page 273*
NEW COMMUNITIES *page 274*

Pollution *page 274*
ENVIRONMENTAL POLLUTION, GENERAL *page 274*
AIR POLLUTION *page 274*
WATER POLLUTION *page 274*
SOLID WASTE *page 274*
LITTER *page 275*
PESTICIDES *page 275*

The Rural Environment *page 275*
RURAL COMMUNITIES *page 275*
FARMS AND RANCHES *page 275*
FORESTS *page 275*
WETLANDS AND ESTUARIES *page 275*
SHORELINES AND ISLANDS *page 275*
WATER RESOURCES *page 275*
WILDLIFE *page 276*
MINED-LAND RECLAMATION *page 276*
TRAILS *page 276*
OUTDOOR RECREATION *page 276*
NATIONAL PARKS, FORESTS AND WILDERNESS *page 276*

Transportation *page 276*
URBAN TRANSPORTATION, GENERAL *page 276*
HIGHWAYS *page 276*
AIRPORTS *page 276*

The View *page 277*
SCENIC PRESERVATION *page 277*
LANDSCAPE DESIGN AND PLANTING *page 277*
UTILITY WIRES AND FACILITIES *page 277*
JUNKYARD CONTROL AND SCREENING *page 277*
SIGN CONTROL *page 277*

Education *page 277*
PRIMARY AND SECONDARY SCHOOLS *page 277*
HIGHER EDUCATION AND CONTINUING EDUCATION *page 277*

For further suggestions, most Federal Departments publish lists of their publications, as well as selective bibliographies on particular subjects—one issued by the Department of Housing and Urban Development, for example: 60 Books on Housing and Urban Planning. (*Available from the Superintendent of Documents, Washington, D.C. 20402, 20 cents.*)

Many private organizations also have similar lists.

A unique service is The Conservation Library Center, *housed in the Denver Public Library (Denver, Colo. 80202). It was started in 1962 with the support of the American Conservation Association, to collect and make available books, periodicals and other publications; motion pictures; and drawings and paintings on natural resource subjects.*

BOOKS AND PAMPHLETS WHICH CAN HELP

Community Action

CITIZEN GROUPS

Citizen Manual for Community Action. This practical handbook covers action for open space and recreation, townscape and landscape, clean air and water, and training of young people, and includes plain-talk advice on solving problems—from scenic easements to bond issues. Prepared by the Citizens' Advisory Committee on Recreation and Natural Beauty. 1968. 36 pages. 40 cents. Superintendent of Documents, Washington, D.C. 20402. Single copy free from the Committee, 1700 Pennsylvania Ave., N.W., Washington, D.C. 20006.

Community Action for Outdoor Recreation and Conservation. Groundwork, action, and follow through—how to go about it. By William H. Whyte for Young Women's Christian Association in cooperation with American Conservation Foundation. 1965. 36 pages. $1. National Board, YWCA, 600 Lexington Ave., New York, N.Y. 10022.

Community Improvement Through Beautification. A primer for action. By Federal Extension Service, Department of Agriculture. 1965. 6 pages. 5 cents. Superintendent of Documents, Washington, D.C. 20402.

It's Your Community! A guide to a more attractive community, including planning and zoning tools. By Henry B. Raymore and H. Stuart Ortloff. 1965. 240 pages. M. Barrows and Co., 425 Park Ave. South, New York, N.Y. 10016.

Land and Water for Tomorrow. Handbook for training community leaders. 1967. 44 pages. Single copy free. League of Women Voters Education Fund, 1200 17th St., N.W., Washington, D.C. 20036.

More Attractive Communities for California. Practical handbook for more attractive communities everywhere. 1960. 72 pages. $1. California Roadside Council, 2636 Ocean Ave., San Francisco, Calif. 94132.

This Land of Ours. Community and conservation projects for citizens. By Alice Harvey Hubbard. 1960. 272 pages. $4.95. Macmillan Co., 60 Fifth Ave., New York, N.Y. 10011.

(b) YOUTH GROUPS

The 1966 National Youth Conference on Natural Beauty and Conservation resulted in publication of the following:

Suggestions for Involving Young People in Community Improvement Projects—As Young People See It. Guidelines for action developed by Youth Conference delegates. 1967. 10 pages.

Report to the Nation. Report on the Conference itself, and on delegates' follow-up activities. Published by Xerox Corp. 1967. 36 pages.

Youth Power. An evaluation of the National Youth Conference on Natural Beauty and Conservation and its follow-up activities by Science Research Associates, Inc., a subsidiary of IBM Corp. 1968. 60 pages.

(Each of the above publications is available free from the National Youth Conference's Coordinators Office, 830 Third Avenue, New York, New York 10022.

Youth Takes the Lead. Guidelines to assist teenagers in community improvement projects developed by Science Research Associates, Inc., a subsidiary of IBM Corp., in cooperation with the National Youth Conference on Natural Beauty and Conservation, based on experience of teenagers. Available for sale, Science Research Associates, Inc., 259 E. Erie Street, Chicago, Ill.

BUSINESS AND INDUSTRY

Keeping America Beautiful. Series of papers on beauty and economics of the business community. General Electric Forum. Oct.–Dec. 1965. 34 pages. $1. The General Electric Company, Bldg. 23, Room 233, Schenectady, N.Y. 12305.

LOCAL GOVERNMENT

Guidelines for Town Conservation Commissions. Connecticut experience, useful elsewhere. 1966. 11 pages. Single copy free. Cooperative Extension Service, College of Agriculture, University of Connecticut, Storrs, Conn. 06268.

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A Different Kind of Country. The effects of man's influence on nature. By R. F. Dasmann. 1968. 276 pages. $5.95. Macmillan Co., 60 Fifth Ave., New York, N.Y. 10011.

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Federal Threats to the California Landscape. 1967. 66 pages. $2. California Tomorrow, Forum Building, Sacramento, Calif. 95814.

The Fitness of Man's Environment: Smithsonian Annual II. Twelve contributions on the theme that man can no longer afford to alter his environment without recognizing that environment is the dynamic sum of its interrelated parts. Robert McC. Adams and others, introd. by Rt. Hon. Jennie Lee. 1968. 250 pages. $5.95. Smithsonian Press, Smithsonian Institution, Washington, D.C. 20560.

Future Environments of North America. Thirty ecologists, planners, economists, lawyers and conservationists explore the decisionmaking process as it affects man's relation to his environment. Edited by F. Fraser Darling and John P. Milton for The Conservation Foundation. 1966. 790 pages. $12.50. Doubleday, 277 Park Ave., New York, N.Y. 10017.

A Guide to Natural Beauty. Suggestions for building and preserving natural beauty in the home, community and countryside. Department of Agriculture. 32 pages. 55 cents. Superintendent of Documents, Washington, D.C. 20402.

The Living Landscape. A naturalist's introduction to ecology—the interplay of the living landscape. By Paul B. Sears. 1966. 199 pages. $4.95. Basic Books, New York, N.Y. 10016.

Man-made America: Chaos or Control. Planning and design of the landscape for housing, industry, commerce, highways, parks and other forms of open space. Includes chapter on historic preservation. By Christopher Tunnard and Boris Pushkarev. 1963. 479 pages. $15. Yale University Press, New Haven, Conn. 06520.

Outdoors USA. Authors of varied backgrounds offers a variety of comment, reminiscence and practical how-to from personal experience on The Big Woods, Water, Beautification and The Countryside. Sample chapters: "Forest Patterns," "Land Management for City Water," "Conservation Solutions to the Town Dump Mess," "Healing Strip Mine Scars," "Reserving Open Space So Cities May Breathe." 1967 Yearbook, Department of Agriculture. 408 pages. $2.75. Superintendent of Documents, Washington, D.C. 20402.

The Quiet Crisis. History of the relationship of the American people to the land. Covers the exploitation period, the conservation movement, and today's need for good stewardship. By Stewart L. Udall. 1963. 209 pages. $5. Holt Rinehart Winston, 383 Madison Ave., New York, N.Y. 10017.

Readings in Resource Management. Collection and analysis of wideranging viewpoints on natural resource conservation. By Ian Burton and Robert W. Kates. 1965. 609 pages. $8.50. University of Chicago Press, Chicago, Ill. 60601.

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A Sand County Almanac. Reflections and observations on man's belief in the unity between man and the land. By Aldo Leopold, 1966 edition. 269 pages. $6.50. Oxford University Press, 417 Fifth Ave., New York, N.Y. 10016.

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A Strategy for a Livable Environment. Report to the Secretary of Health, Education, and Welfare by his Task Force on Environmental Health and Related Problems. 1967. 90 pages. 60 cents. Superintendent of Documents, Washington, D.C. 20402.

Wastes in Relation to Agriculture and Forestry. Sorts out the sources and effects of ten major types of pollution including chemicals, sediment, organic wastes, and airborne dust, and tells how agriculture and forestry both suffer from pollution and contribute to it. 112 pages. 60 cents. For sale by the Superintendent of Documents, Washington, D.C. 20402.

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HOUSING AND NEIGHBORHOODS

Cluster Development. To structure living space so the outdoors is a part of daily life. By William H. Whyte. 1964. 130 pages. $3. American Conservation Association, 30 Rockefeller Plaza, New York, N.Y. 10020.

Design of the Housing Site, A Critique of American Practice. Suggestions for improvement of design and site planning. By Robert D. Katz. 1967. 223 pages. Single copy free. Small Homes Council, Building Research, University of Illinois, Urbana, Ill. 61801.

Dilemma of Urban America. Views on building new communities, renewing older ones and the resolution of paradoxes caused by urban issues. By Robert C. Weaver. 1965. 138 pages. $3.50. Harvard University Press, Cambridge, Mass. 02138.

The Future of Old Neighborhoods; Rebuilding for a Changing Population. Aspects of the gradual replacement of older areas of cities with suggestions for public action. By Bernard J. Frieden. 1964. 209 pages. $7.50. M.I.T. Press, Cambridge, Mass. 02139.

Improving the Quality of Urban Life. A program guide to model neighborhoods. By Department of Housing and Urban Development. 1967. 51 pages. 55 cents. Superintendent of Documents, Washington, D.C. 20402.

Know the Soils You Build On. Guidelines to help planners, builders, and homeowners avoid waste, loss and ugliness. Department of Agriculture. 1967. 13 pages. 15 cents. Superintendent of Documents, Washington, D.C. 20402.

Legal Aspects of Planned-Unit Residential Development. Recommendations for State and local regulation of cluster subdivisions and similar developments. By Jan Krasnowiecki, Richard F. Babcock and David McBride. 1965. 96 pages. $6. Urban Land Institute, 1200 18th St., NW., Washington, D.C. 20036.

Open Space Communities in the Marketplace. Survey of public acceptance. By Carl Norcross. 1966. 98 pages. $6. Urban Land Institute, 1200 18th St., NW., Washington, D.C. 20036.

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Planning, Development and Management of New Urban Areas. Treats common open space in cluster developments. By Byron R. Hanke. 1967. 24 pages. Free. Department of Housing and Urban Development, Washington, D.C. 20411.

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Cities. A landscape architect looks at elements of design, texture and form in the details that constitute the visual appeal of cities. By Lawrence Halprin. 1966. 224 pages. $15. Reinhold Publishing Corp., 430 Park Ave., New York N.Y. 10022.

The Heart of Our Cities: the Urban Crisis: Diagnosis and Cure. Human health, comfort, convenience and enjoyment can be enhanced by a revitalized city core. By Victor Gruen. 1964. 368 pages. $8.50. Simon and Schuster, 630 Fifth Ave., New York, N.Y. 10020.

Lessons from Experience in Downtown Development. Case history of downtown Denver as a guide to central city development. 1965. 64 pages. $5. Urban Land Institute, 1200 18th St., N.W., Washington, D.C. 20036.

OPEN SPACES

The Last Landscape. Survey of conservation problems and opportunities in urban areas. Explains techniques and tools such as open space zoning, easements, and land trusts. By William H. Whyte. 1968. 375 pages. $6.50. Doubleday, 277 Park Ave., New York, N.Y. 10017.

Open Space Action. Study Report No. 15 of the Outdoor Recreation Resources Review Commission. By William H. Whyte. 1962. 119 pages. 65 cents. Superintendent of Documents, Washington, D.C. 20402.

Open Space for Urban America. Comprehensive information on open space planning, land acquisition, financing and administration. Department of Housing and Urban Development study. 1966. 154 pages. $1.50. Superintendent of Documents, Washington, D.C. 20402.

Open Space Land, Planning and Taxation; A Selected Bibliography. By John E. Rickert, Urban Land Institute. 1965. 58 pages. 40 cents. Superintendent of Documents, Washington, D.C. 20402.

Stewardship. Although addressed to owners of open land in the New York City area, this will be useful to private landowners anywhere who want to protect the natural beauty of their land. 1965. 82 pages. $3. Open Space Action Committee, 205 E. 42nd St., New York, N.Y. 10017.

WATERFRONTS

Planning and Developing Waterfront Property. Appraisal of waterfront planning and development as they affect developers and investors. Case histories. By William B. Rick. 24 pages. $3. Urban Land Institute, 1200 18th St., N.W., Washington, D.C. 20036.

Principles of Waterfront Renewal. Summary of experiences in 50 American cities. Article by R. A. Lehmann in Landscape Architecture Quarterly. July 1966.

Waterfront Renewal. Recommendations for action to restore city waterfronts. Case histories. Wisconsin Department of Resource Development. 1966. 68 pages. Single copies free. State of Wisconsin, Department of Resource Development, Madison, Wis. 53702.

HISTORIC PRESERVATION

Planning for Preservation. R. L. Montague and T. P. Wrenn. 1964. 42 pages. $2.50. American Society of Planning Officials, 1313 E. 60th St., Chicago, Ill. 60637.

Preserving Historic America. Examples of local restoration projects assisted by programs of the Departments of Housing and Urban Development and of the Interior (National Park Service), and National Trust for Historic Preservation. 1966. 78 pages. $1. Superintendent of Documents, Washington, D.C. 20402.

Sites Eligible for the Registry of National Landmarks. Explains program to promote conservation of sites of historical and scientific significance. By National Park Service. 1965. 28 pages. Superintendent of Documents, Washington, D.C. 20402.

With Heritage So Rich. A Report of the U.S. Conference of Mayors, Special Committee on Historic Preservation. 1966. 230 pages. $10. Random House, 457 Madison Ave., New York, N.Y. 10022.

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Alleviation of Jet Aircraft Noise Near Airports. Report of Jet Aircraft Noise Panel, Office of Science and Technology. 1966. 167 pages. Executive Office of the President, Washington, D.C. 20500.

Community and Privacy, Toward a New Architecture of Humanism. Cars and noise as they affect the human habitat. By Serge Chermayeff and Christopher Alexander. 1963. 236 pages. $5.95. Doubleday, 277 Park Ave., New York, N.Y. 10017.

COMMUNITY

The Death and Life of Great American Cities. A diagnosis of the ills of New York City, with unothodox prescriptions for treatment, emphasizing concern for the people who live there. By Jane Jacobs. 1961. 458 pages. $7.50. Random House, 457 Madison Ave., New York, N.Y. 10022.

Communities of Tomorrow. A policy statement prepared by the U.S. Department of Agriculture which suggests a course for long-range community planning and development. 34 pages. Available free from Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

Urban Design: The Architecture of Towns and Cities. A nontechnical discussion. By Paul D. Spreiregen for the American Institute of Architects. 1965. 243 pages. $12.50. McGraw-Hill, 330 W. 42nd St., New York, N.Y. 10036.

Urban Landscape Design. Comprehensive treatment of landscape design problems in urban areas: Patios and other enclosed spaces; school, campus, shopping center, and other functionally related buildings; parks and playgrounds; marinas; streets and highways. By Garrett Eckbo. 1964. 248 pages. $16.50. McGraw-Hill, 330 W. 42nd Street, New York, N.Y. 10036.

PLANNING—URBAN

ABC's of Community Planning. Basic handbook for community betterment. 1962. 34 pages. 25 cents. Community Planning Division, Sears, Roebuck and Co., Chicago, Ill. 60607.

Land-use Intensity. Guide for measurement and application of land-use intensity. Revised 1966. 10 pages. Free at local offices, Federal Housing Administration, Department of Housing and Urban Development. Also, Washington, D.C. 20411.

The Place of the Ideal Community in Urban Planning. Physical aspects of past "utopian" designs are discussed. By Thomas A. Reiner. 1963. 194 pages. $8.50. University of Pennsylvania Press, Philadelphia, Pa. 19104.

Planning for a Nation of Cities. Sam B. Warner. 1967. 310 pages. $2.95. Massachusetts Institute of Technology Press, Cambridge, Mass. 02139.

Urban Land Use Planning. Points to be encompassed in a city plan. By Stuart Chapin, Jr. 1965. 498 pages. $7.95. University of Illinois Press, Urbana, Ill. 61801.

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Man and Land in the United States. By Marion Clawson. 1964. 178 pages. $4.50. University of Nebraska Press, Lincoln, Nebr. 68503.

The Potomac. Report of the Potomac Planning Task Force, an interdisciplinary group appointed by the American Institute of Architects to propose means of enhancing the Potomac Valley including the Washington, D.C., waterfront. 1967. 101 pages. $5. Superintendent of Documents, Washington, D.C. 20402.

METROPOLITAN REGION

The Challenge of Megalopolis. A graphic presentation of problems of the urbanized northeastern seaboard of the United States. Based on a study by Jean Gottman. By Wolf Von Eckardt. 1964. 126 pages. $3.95. Macmillan Co., 60 Fifth Ave., New York, N.Y. 10011.

The City Is the Frontier. Colorful critique of the city, with special attention to urban renewal. By Charles Abrams. 1965. 394 pages. $6.50. Harper and Row, 49 E. 33rd St., New York, N.Y. 10016.

Metropolis Against Itself. Analysis of issues where local governments have to deal with new kinds of problems. 1959. 54 pages. $1. Committee for Economic Development, 711 Fifth Ave., New York, N.Y. 10010.

The Metropolis: Its People, Politics, and Economic Life. Problems of metropolitan areas, and various approaches to governing them. By John C. Bollens and Henry J. Schmandt. 1965. 643 pages. $8.95. Harper and Row, 49 E. 33rd St., New York, N.Y. 10016.

The Urban Condition: People and Policy in the Metropolis. Insights into problems caused or intensified by urban environments. Papers by psychologists, educators, biologists, lawyers, economists, architects, sociologists, welfare workers, social planners. Edited by Leonard J. Duhl. 1963. 410 pages. $10. Basic Books, 404 Park Ave. South, New York, N.Y. 10016.

NEW COMMUNITIES

The Community Builders. By Edward P. Eichler and Marshall Kaplin. 1967. 196 pages. $5.50. University of California Press, Berkeley, Calif. 94720.

Toward New Towns for America. By Clarence S. Stein. Revised 1965. 260 pages. $10. Massachusetts Institute of Technology Press, Cambridge, Mass. 02139.

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ENVIRONMENTAL POLLUTION, GENERAL

The Adequacy of Technology for Pollution Abatement. Report for Subcommittee on Science, Research, and Development of Committee on Science and Astronautics. 1966. 17 pages. 89th Congress, 2nd Session. U.S. House of Representatives, Washington, D.C. 20515.

Environmental Improvement. Lectures (by Rene J. Dubos, John A. Baker, Sen. Edmund S. Muskie, John T. Middleton, and S. Dillon Ripley) on control of air, water and soil pollution. Edited by Ralph W. Marquis. 1966. 105 pages. $1.50. Department of Agriculture Graduate School, Washington, D.C. 20250.

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Restoring the Quality of Our Environment. Report of the President's Science Advisory Committee's Panel on Environmental Pollution, John W. Tukey, Chairman. 1965. 318 pages. $1.25. Superintendent of Documents, Washington, D.C. 20402.

Science and Improving Our Environment. A comprehensive report on how agricultural research prevents pollution, how agricultural scientists protect the food we eat, the water we drink, and the air we breathe. Agricultural Research Service. U.S. Department of Agriculture, Washington, D.C. 20250.

Waste Management and Control. Report to the Federal Council for Science and Technology. By National Academy of Sciences Committee on Pollution, Athelstan Spilhaus, Chairman. 1966. 257 pages. $4. National Academy of Sciences, 2101 Constitution Ave., N.W., Washington, D.C. 20418.

AIR POLLUTION

Community Action Program for Air Pollution Control. 8 pamphlet guides. 1966. Free. National Association of Counties, 1001 Connecticut Ave., N.W., Washington, D.C. 20036.

Crisis in Our Cities. By L. Herber. 1965. 239 pages. Prentice-Hall, Englewood Cliffs, N.J. 07632.

The Economics of Air Pollution. Papers, edited by H. Wolozin. 1968. 318 pages. $5. W. W. Norton, 55 Fifth Ave., New York, N.Y. 10003.

The Federal Air Pollution Program. Summarizes Federal assistance available to communities and States. 1966. 52 pages. Free. National Center for Air Pollution Control, Department of Health, Education, and Welfare, Washington, D.C. 20201.

Other Center publications include: *Clean Air for Your Community*. 1966, 4 pages; *Take Three Giant Steps to Clean Air*, 1966, 10 pages; *Today and Tomorrow in Air Pollution*, 1966, 28 pages; *The Effects of Air Pollution*, 1966, 18 pages; *The Sources of Air Pollution*, 1966, 16 pages; *A Digest of State Air Pollution Laws*, 1966, 292 pages.

Freedom to Breathe. Report of the Mayor's Task Force on Air Pollution in the City of New York. 1966. 175 pages.

Special Report to Mayor John V. Lindsay. 1967. 15 pages. Two examples of plain talk reports of a local citizens' advisory group. May be requested from the Office of the Mayor, New York, N.Y. 10007.

WATER POLLUTION

Citizen Action for Clean Water. Story of successful campaign for New York State's $1 billion bond issue to finance clean water. 1966. 15 pages. Single copy free. Citizens' Committee for Clean Water, 105 E. 22nd St., New York, N.Y. 10010.

Citizen Guide to Action for Clean Water. Explanation of the Water Quality Act of 1965. How citizens can assist in achieving its purposes. 1966. 32 pages. Free. Izaak Walton League of America, 1326 Waukegan Rd., Glenview, Ill. 60025.

Community Action Program for Water Pollution Control. 8 pamphlet guides. 1965. Free. National Association of Counties, 1001 Connecticut Ave., N.W., Washington, D.C. 20036.

Consideration of Federal Financial Incentives to Industry for Abating Water Pollution. Proposed types of tax incentives and other aid; pros and cons. 1966. 20 pages. 50 cents. League of Women Voters, 1200 17th St., N.W., Washington, D.C. 20036.

The Creek and the City. A natural stream system under urban pressures, including pollution. Case history of Rock Creek Park in metropolitan Washington, D.C., with action suggestions. For Department of the Interior. 1967. 52 pages. 50 cents. Superintendent of Documents, Washington, D.C. 20402.

Focus on Clean Water. Suggested program for community organizations. 1966. 32 pages. Free. Water Pollution Control Administration, Washington, D.C. 20203.

SOLID WASTE

Automobile Disposal: A National Problem. Case studies in selected areas of factors influencing accumulation of junked autos. Bureau of Mines, Department of the Interior. 1967. 569 pages. $4.50. Superintendent of Documents, Washington, D.C. 20402.

Disposal of Automobile Scrap in Connecticut. An evaluation of marketing and technology. February 1967. Prepared by The Connecticut Development Commission, State Office Building, Hartford, Conn. 06115. Single copies are available on request.

Disposal of Junked Vehicles on Private Property. Vehicle removal procedures and selected laws in the Rochester, N.Y., area. 1966. 42 pages. Eastern States Building Officials Federation, City Public Safety Building, Civic Center Plaza, Rochester, N.Y. 14614.

Final Report on the Removal and Utilization of Junked Automobiles in Southeastern Florida. By M. G. Roth, E. J. Jablonowski, and R. W. Hale of the Battelle Memorial Institute for the Economic Development Administration, U.S. Department of Commerce. 1967. 60 pages. $3. Superintendent of Documents, Washington, D.C. 20402.

Legal Aspects of Junk Auto Disposal. 1967. 39 pages. $1. Northern Virginia Regional Planning Commission, 6316 Castle Pl., Falls Church, Va. 22044.

Iron and Steel Scrap Consumption Problems. Nature of scrap and scrap-use practices; the junk car problem. By Gardner F. Derrickson for Department of Commerce. 1966. 52 pages. 40 cents. Superintendent of Documents, Washington, D.C. 20402.

Motor Vehicle Abandonment in U.S. Urban Areas. Nature and extent of the problem and adequacy of present methods of handling it. By Gardner F. Derrickson for the Department of Commerce. 1967. 51 pages. 35 cents. Superintendent of Documents, Washington, D.C. 20402.

Municipal Refuse Disposal. 1966. 528 pages. $10. American Public Works Association, Public Administration Service, Chicago, Ill.

LITTER

Keep America Beautiful Manual for Business and Industry. Suggests antilitter activities for businesses. 24 pages. Keep American Beautiful, 99 Park Ave., New York, N.Y. 10016.

PESTICIDES

Safe Use of Agricultural and Household Pesticides. Information on pesticide use and safety precautions. Department of Agriculture. 65 pages. 50 cents. Superintendent of Documents, Washington, D.C. 20402.

Safe Use of Pesticides . . . in the Home . . . in the Garden. Emphasizes need to read and follow labels, and lists precautions. Agricultural Research Service, Department of Agriculture. Washington, D.C. 20250.

Saving the Forests. How foresters and scientists team up with public and private landowners to protect forest lands and wildlife resources against insects and disease. 1965. 12 pages. Free. Department of Agriculture, Washington, D.C. 20250.

Silent Spring. Popular account and analysis of effects of pesticides on the natural world. By Rachael Carson. 1962. 30 pages. 75 cents. Fawcett World Library, 67 W. 44th St., New York, N.Y. 10036.

That We May Live. Facts about the effects of pesticides on our national health based on a scientific report made in behalf of Congress. Jamie L. Whitten. 1966. 251 pages. $6.95. D. Van Nostrand Company, Inc., 24 West 40th Street, New York, N.Y. 10018.

The War That Never Ends . . . Facts About Pest Control. Reviews the need for pesticides, USDA's policy on pesticides, the extent of pesticide usage, and the work being done to discover alternate methods of pest control. 1966. 12 pages. Free. Office of Information, Department of Agriculture, Washington, D.C. 20250.

The Rural Environment

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30,000 Communities Without Water. 1965. 17 pages. Free. Farmers Home Administration, Department of Agriculture, Washington, D.C. 20250.

Loans for Resource Conservation & Development. 1967. Free. Farmers Home Administration, Department of Agriculture, Washington, D.C. 20250.

Rental and Co-op Housing in Rural Areas. 1967. 4 pages. 5 cents. Superintendent of Documents, Washington, D.C. 20402.

Revitalizing Rural America—Little River County, Arkansas. 1967. 23 pages. Free. Office of Information, Department of Agriculture, Washington, D.C. 20250.

Rural Areas Development at Work. 1966. 31 pages. Free. Department of Agriculture, Washington, D.C. 20250.

The Why and How of Rural Zoning. Agriculture information bulletin. Revised August 1967. 58 pages. Free. Department of Agriculture, Washington, D.C. 20250.

Zoning—An Aid to Community Resource Development. Federal Extension Service, Department of Agriculture. 1967. 13 pages. 15 cents. Superintendent of Documents, Washington, D.C. 20402.

Zoning for Rural Areas. Revised August 1965. Free. Department of Agriculture, Washington, D.C. 20250.

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FARMS AND RANCHES

Farmers Home Administration Strengthens Family Farms, Strengthens Rural Communities, Reduces Rural Poverty. 1967. Free. Farmers Home Administration, Department of Agriculture, Washington, D.C. 20250.

Food and Fiber for the Future. Agricultural and foreign trade policies and their effects on the economy. National Advisory Commission on Food and Fiber. 1967. 361 pages. $1.25. Superintendent of Documents, Washington, D.C. 20402.

Our American Land. Overview of the land as base for bounty and beauty. 1967. 29 pages. 20 cents. Superintendent of Documents, Washington, D.C. 20402.

Resources in Action—Agriculture/2000. Conservation policies and goals of the Department of Agriculture including the quality of the environment, and widening public awareness and involvement in conservation of resources. 1967. 60 pages. Free. Department of Agriculture, Washington, D.C. 20250.

FORESTS

Forest Patterns, Beauty and Use. By Edward P. Cliff. 1965. 6 pages. Department of Agriculture, Washington, D.C. 20250.

Timber Harvesting and Forest Aesthetics. Describes ways, means, and costs of cutting up tops of felled trees and other practices such as pruning and thinning. Includes contract procedures to assure proper clean-up after logging operations. 1966. 20 pages. College of Agriculture, University of Massachusetts, Amherst, Mass. 01002.

WETLANDS AND ESTUARIES

Estuarine Areas: Hearings on bills to authorize Federal-State action to protect, develop, and make accessible. Subcommittee on Fisheries and Wildlife Conservation, Committee on Merchant Marine and Fisheries, House of Representatives, 90th Congress, 1st Session. March 6, 8, 9, 1967. May be requested from the Committee, Washington, D.C. 20515.

Wetlands of the United States. A report on existing wetlands as of 1954–55. 1956. 67 pages. $1. Department of the Interior, Washington, D.C. 20240.

SHORELINES AND ISLANDS

The Maine Coast: Prospects and Perspectives. Proceedings of a symposium examining this shoreline as a system of endangered scenic and recreational resources. Will be useful in other areas. 1967. 100 pages. Free. Center for Resource Studies, Bowdoin College, Brunswick, Me. 04011.

Our Vanishing Shoreline. Survey and report on Atlantic and Gulf shoreline. 36 pages. Free. National Park Service. 1956. Department of the Interior, Washington, D.C. 20240.

Shore Protection, Planning and Design. With bibliography. 1966. 401 pages. $3. Army Corps of Engineers, Coastal Engineering Resources Center, Washington, D.C.

WATER RESOURCES

The Big Water Fight. Nationwide citizen action on water supply, pollution, floods, and planning. The League of Women Voters Education Fund. 1966. 256 pages. $6.95. Stephen Greene Press, 120 Main St., Brattleboro, Vt. 05301.

Nature's Constant Gift. A report on the conservation of the water resources of the Tennessee Valley. 1966. 72 pages. Free. Tennessee Valley Authority, Knoxville, Tenn. 37902.

Science and Saving Water and Soil. Research findings with regard to saving water, and proper uses of water. 1967. 6 pages. 20 cents. Department of Agriculture, Washington, D.C. 20250.

WILDLIFE

Birds in Our Lives. Contributions from many people of varied backgrounds on a common subject. Department of the Interior. 1966. 576 pages. $9. Superintendent of Documents, Washington, D.C. 20402.

Wildlife Habitat Improvement. What groups and individuals can do to help attract and support wildlife. 1966. 56 pages. $2.50. National Audubon Society, Nature Center Division, 1130 Fifth Ave., New York, N.Y. 10028.

MINED-LAND RECLAMATION

Strip and Surface Mining in Appalachia. Study by Office of the Secretary, Department of the Interior. Report of field appraisal team which examined reclamation work at 56 sites. 1965. 78 pages. $1. Superintendent of Documents, Washington, D.C. 20402.

Surface Mining and Our Environment. Identifies 2 million acres of surface-mined area which should have reclamation treatment. Acid mine drainage and other water quality factors are considered. Includes action recommendations. 1967. 124 pages. $2. Department of the Interior. Superintendent of Documents, Washington, D.C. 20402.

TRAILS

Developing the Self-Guiding Trail in the National Forest. 1964. 20 pages. 20 cents. Superintendent of Documents, Washington, D.C. 20402.

Trail Planning and Layout. By B. L. Ashbaugh. Information-education bulletin. 1965. 104 pages. $2.50. Nature Center Division, National Audubon Society, 1130 Fifth Ave., New York, N.Y. 10028.

Trails for America. Report on a study proposing a nationwide trails system. By the Departments of the Interior and Agriculture. 1966. 155 pages. $2. Superintendent of Documents, Washington, D.C. 20402.

OUTDOOR RECREATION

County Action for Outdoor Recreation. How-to-do-it, with case histories illustrating factors of success. 1964. 50 pages. 25 cents. National Association of Counties, 1001 Connecticut Ave., N.W., Washington, D.C. 20036.

County Parks and Recreation: a Basis for Action. Papers by county officials and others. Edited by Philip Warren. 1964. 326 pages. $3.50. National Association of Counties, 1001 Connecticut Ave., N.W., Washington, D.C. 20036.

Economics of Outdoor Recreation. By Marion Clawson and Jack L. Knetsch. 1966. 317 pages. $8.50. Johns Hopkins Press, Baltimore, Md. 21218.

Handbook of Outdoor Recreation Enterprises in Rural Areas. 1966. 122 pages. 65 cents. Superintendent of Documents, Washington, D.C. 20402.

Loans for Recreational Enterprises. 1966. Free. Farmers Home Administration, Department of Agriculture, Washington, D.C. 20250.

Open Space and the Law. Edited by Frances Herring. 1965. 160 pages. $3. Institute of Governmental Studies, University of California, Berkeley, Calif. 94720.

Outdoor Recreation for America. The landmark report of the Outdoor Recreation Resources Review Commission. 1962. 243 pages. Out-of-print but available at many public libraries. A 40-page digest of the ORRRC report, "Action for Outdoor Recreation for America," may be requested from regional offices of the Bureau of Outdoor Recreation, or from the Conservation Foundation, 1250 Connecticut Ave., N.W., Washington, D.C. 20036.

Outdoor Recreation Space Standards. Reports area and facility standards used by many organizations for park and recreation areas, and space needs for sport and other outdoor activities. 1967. 70 pages. 45 cents. Superintendent of Documents, Washington, D.C. 20402.

Parks for America. A survey of potential park and related resources in all 50 States and a preliminary plan. By Department of the Interior (National Park Service). 1964. 485 pages. $5.25. Superintendent of Documents, Washington, D.C. 20402.

Policy Issues in Outdoor Recreation. Proceedings of a conference cosponsored by Utah State University College of Natural Resources, and Department of the Interior Bureau of Outdoor Recreation. 1966. 120 pages. Single copy free. Department of the Interior, Washington, D.C. 20402.

Recreation Land Price Escalation. Means of controlling or allowing for spiraling costs of recreation lands and waters for public purposes, present and future. 1967. 33 pages. Single copy free. Department of the Interior, Washington, D.C. 20402.

Rural Recreation for Profit. By C. R. Smith, L. E. Partain, and J. R. Champlin. 1966. 304 pages. $6.95. Interstate Printers and Publishers, Danville, Ill. 61832.

NATIONAL PARKS, FORESTS AND WILDERNESS

The American Outdoors. Management for Beauty and Use. Forest Service, Department of Agriculture, 1965. 76 pages. 55 cents. Superintendent of Documents, Washington, D.C. 20402.

Outdoor Recreation in the National Forests. 1965. 106 pages. Free. Forest Service, Department of Agriculture, Washington, D.C. 20250.

A Wilderness Bill of Rights. By William O. Douglas. 1965. 192 pages. $6. Little Brown & Co., 34 Beacon St., Boston, Mass. 02108.

Transportation

URBAN TRANSPORTATION, GENERAL

Urban Public Transportation, Selected References. Background, analysis, tried or proposed solutions in public transportation of people. 1965. 20 pages. Free. Department of Housing and Urban Development, Washington, D.C. 20410.

HIGHWAYS

Art and Science of Roadside Development, Report of the Highway Research Board. 1966. 81 pages. $4. National Research Council, Washington, D.C. 20418.

Proposed Program for Scenic Roads and Parkways. Prepared by Department of Commerce for the President's Council on Recreation and Natural Beauty. 1966. 254 pages. $2.75. Superintendent of Documents, Washington, D.C. 20402.

Public Participation in Highway Beautification. Short case histories of projects reported by State highway departments. 1966. 14 pages. Free. Bureau of Public Roads, Department of Transportation, Washington, D.C. 20590.

The Scenic Route. Guide for the designation of an official scenic highway in California. Useful elsewhere. 1965. 55 pages. Free. State of California Transportation Agency, Department of Public Works, Sacramento, Calif. 95814.

The View from the Road. The esthetics of highways: How they look to the driver and what this implies for design. By Donald Appleyard, Kevin Lynch, and John R. Myer. 1963. 64 pages. $15. Massachusetts Institute of Technology Press, Cambridge, Mass. 02139.

AIRPORTS

Airport Land Needs. 1966. 85 pages. $3. Arthur D. Little, 35/202 Acorn Park, Cambridge, Mass. 02140.

National Airport Plan. Identifies existing and new airports recommended for development during the period 1968–72. Intragovernmental coordination and the airport environment are among subjects for comment. 1968. 218 pages. $1. Superintendent of Documents, Washington, D.C. 20402.

The View

SCENIC PRESERVATION

Private Approaches to the Preservation of Open Land. Various legal methods through which a private owner may regulate use of his land to preserve its natural values, including outright transfer, easement, leasehold, trust and controls by condition and covenant. By Russell L. Brennan. 1966. 150 pages. $10. Conservation and Research Foundation, 13 Woodsea Pl., Waterford, Conn. 06385.

Scenic Easements in Action. 2 volumes: 1) Manual for Conference Workshops on Planning, Administration, Nongovernmental Program and Legal Aspects, 85 pages; 2) Proceedings of a Conference on Scenic Easements in Action, 70 pages. 1966. $7 for both volumes. Extension Law Department, 236 Law School, University of Wisconsin, Madison, Wis. 53706.

Vermont Scenery Preservation. Emphasis on the view from highways. Strong, specific recommendations for legislation and enforcement. Approaches and methods could be useful elsewhere. Prepared under grant from the American Conservation Association. 1966. 72 pages. $1. Central Planning Office, State of Vermont, 118 State St., Montpelier, Vt. 05602.

LANDSCAPE DESIGN AND PLANTING

Department of Agriculture produces many bulletins on selecting and caring for plant materials, each on specific problems. Recent representative ones of most common concern are: *Better Lawns—Establishment, Maintenance, Renovation, Lawn Problems, Grasses.* 4 pages. 15 cents; *Color It Green with Trees,* 16 pages. 20 cents; *Growing Flowering Perennials,* 4 pages. 15 cents; *Trees for Shade and Beauty,* 8 pages. 10 cents. Available from Superintendent of Documents, Washington, D.C. 20402.

America's Garden Book. Comprehensive, practical treatise on garden design and planting. By James and Louise Bush-Brown. 1965. 752 pages. $8.95. Charles Scribner's Sons, 597–599 Fifth Ave., New York, N.Y. 10017.

Better Homes and Gardens Landscape Planning. Site planning of homes and planting in relation to the landscape. By Eugene R. Martini. 1963. 192 pages. $3.95. Meredith Press, 1716 Locust St., Des Moines, Iowa 50309.

Growing Your Trees. How to do it for homeowners. By Wilbur H. Youngman and Charles E. Randall. 1967. 72 pages. $2. The American Forestry Association, 919 17th St., N.W., Washington, D.C. 20006.

Landscape Architecture. Covers relation of sites to structures and views, and the shaping of man's environment on a regional as well as a citywide basis. By John O. Simonds. 1961. 244 pages. $12.75. F. W. Dodge, 330 W. 42nd St., New York, N.Y. 10036.

Science and America's Beauty. Agricultural research contribution to beauty—plant exploration, plant breeding, and plant protection. Agricultural Research Service, Department of Agriculture, Washington, D.C. 20250.

UTILITY WIRES AND FACILITIES

Overhead and Underground Transmission Lines. Hearings on bills S. 2507 and S. 2508 to authorize research and development. May 1966. 393 pages. Committee on Commerce, U.S. Senate, Washington, D.C. 20510.

Program for Advancing Underground Electric Power Transmission Technology. Report to the President from the Secretary of the Interior. April 1966. 33 pages. Department of the Interior, Washington, D.C. 20240.

Underground Power Transmission. A report to the Federal Power Commission by the Commission's Committee on Underground Transmission. April 1966. 170 pages. Federal Power Commission, Washington, D.C. 20426.

Report on Cost and Practices on Underground Residential Distribution. 1966. 32 pages. $6. National Association of Home Builders, 1625 L St., N.W., Washington, D.C. 20036.

JUNKYARD CONTROL AND SCREENING

Green/Screen. Case histories of screening eyesores, with photographs, diagrams and layouts. 1967. 10 pages. Free. Institute of Scrap Iron and Steel, 1729 H St., N.W., Washington, D.C. 20006.

Living Screens for America. Guide to suitable plantings for various parts of the country to screen objectionable sights. 1966. 6 pages. Free. Local nurserymen or American Association of Nurserymen, 835 Southern Bldg., Washington, D.C. 20005.

SIGN CONTROL

Signs Out of Control. Case histories of various kinds of billboard and other sign control efforts in communities of different sizes. 1964. 31 pages. $1. California Roadside Council, 2626 Ocean Ave., San Francisco, Calif. 94132.

Education

PRIMARY AND SECONDARY SCHOOLS

Guidelines to Conservation Education Action. By Izaak Walton League of America in cooperation with Conservation Education Association and National Audubon Society, Nature Center Division, 1130 Fifth Ave., New York, N.Y. 10028.

HIGHER EDUCATION AND CONTINUING EDUCATION

Conservation—in the People's Hands. Study of the conservation field emphasizing importance of education to deal with natural resource uses. Problems of communities are identified and procedures are suggested for dealing with them. 1964. 330 pages. $6. American Association of School Administrators, National Education Association, 1201 16th St., N.W., Washington, D.C. 20036.

The College, The Community and Conservation. Summary of a conference on application of college and university resources to land use planning, and conservation of land, air, and water through continuing education programs, with particular reference to Title I of the Higher Education Act of 1965. 1967. 40–50 pages. $1. The Conservation Foundation, 1250 Connecticut Ave., N.W., Washington, D.C. 20036.

PERIODICALS WHICH CAN HELP

This brief listing includes the journals of some specialized trades and professions which frequently contain articles useful to the layman interested in the quality of his environment. These journals are usually available in libraries, or, in some cases, by subscription. The purpose is to suggest such sources with a few examples, rather than to provide a complete list. Prices indicated throughout are for yearly subscription.

Aging. Monthly. Sharing information about programs, activities, and publications among interested individuals, agencies, and organizations, including such topics as recreation, housing, and volunteer community service. Administration on Aging, Social and Rehabilitation Service, Department of Health, Education, and Welfare. $1. Superintendent of Documents, Washington, D.C. 20402.

Agronomy Journal. Monthly. Articles on research pertaining to soils, turfgrass, crops, and land management. $14. American Society of Agronomy, 677 South Segoe Road, Madison, Wis. 53711.

American City. Monthly. $7. Buttenheim Publishing Corp., 757 Third Ave., New York, N.Y. 10017.

American County Government. Monthly. $10. National Association of Counties, 1001 Connecticut Ave., N.W., Washington, D.C. 20036.

American Forests. Monthly. Articles on all resources, and parks and recreation subjects. $6. American Forestry Association, 919 17th St., N.W., Washington, D.C. 20006.

American Highways. Quarterly. Highway construction. 50 cents. American Association of State Highway Officials, 917 National Press Bldg., Washington, D.C. 20004.

American Institute of Architects, Journal. Monthly. Wide and well-illustrated coverage of environmental subjects, including international projects, legislative reports. American Institute of Architects, 1735 New York Ave., N.W., Washington, D.C. 20006.

American Institute of Planners, Journal. Monthly. $5. American Institute of Planners, 917 15th St., N.W., Washington, D.C. 20005.

Architectural Forum. Review of events and ideas about bettering urban environments. 10 issues a year. $10. Urban America, 111 W. 57th St., New York, N.Y. 10019.

City. Bi-monthly. Review of urban America. $5. (Free to members and contributors.) Urban America, 1717 Massachusetts Ave., N.W., Washington, D.C. 20036.

Health-Physical Education-Recreation, Journal. Monthly except July, August, December. $10. American Association for Health, Physical Education and Recreation, 1201 16th St., N.W., Washington, D.C. 20036.

Homebuilding, Journal. Monthly. Contains articles on planning, land use, community development, including such specifics as varieties of cluster developments, traffic patterns, open space plans and uses, zoning requirements and how to meet them. Reprints available at cost. National Association of Home Builders, 1625 L St., N.W., Washington, D.C. 20036.

Journal of Forestry. Monthly. Articles on Forest Resources and related subjects. $12. Society of American Foresters, 1010 16th St., N.W., Washington, D.C. 20036.

Landscape Architecture. Quarterly. International coverage of regional and land planning, design and construction for professional landscape architects, architects and planners, landscape contractors and developers, and conservationists. $6. American Society of Landscape Architects, 344 So. Peterson Ave., Louisville, Ky. 40206.

National Parks Magazine. Monthly. Covers parks, and wilderness, outdoor recreation, the protection and restoration of the outdoor environment generally. $6.50. National Parks Association, 1300 New Hampshire Ave., N.W., Washington, D.C. 20036.

National Wildlife. Monthly. $5 for six issues. National Wildlife Federation, 1412 16th St., Washington, D.C. 20036.

Nation's Cities. Monthly. $6. National League of Cities, 1612 K St., N.W., Washington, D.C. 20006.

Outdoor Recreation Action. Quarterly. Forum for reporting of private, local, State and Federal actions in the areas of outdoor recreation and natural beauty. Started in 1966. Approx. 45 pages. Bureau of Outdoor Recreation, Department of the Interior, Washington, D.C. 20240.

Parks and Recreation. Monthly. National Recreation and Park Association, 1700 Pennsylvania Ave., N.W., Washington, D.C. 20006.

Public Utilities Fortnightly. $19. Public Utilities Reports, Inc., 332 Pennsylvania Bldg., 425 13th St., N.W., Washington, D.C. 20004.

Ranger Rick's Nature Magazine. Monthly. Illustrated nature magazine for children and people who work with children. Includes many ideas for activities related to the natural environment. $6 for 10 issues per year. National Wildlife Federation, 1412 16th St., Washington, D.C. 20036.

Soil Conservation. Monthly magazine of Soil Conservation Service, Department of Agriculture. $1.75. Superintendent of Documents, Washington, D.C. 20402.

Soil and Water Conservation, Journal. Monthly. Articles on various phases of soil and water conservation. $7.50. Soil Conservation Society of America, 7515 N.E. Ankeny Road, Ankeny, Iowa 50021.

Water Pollution Control Federation, Journal. Monthly. $18.50. Water Pollution Control Federation, 3900 Wisconsin Ave., N.W., Washington, D.C. 20016.

FILMS WHICH CAN HELP

Grouped alphabetically by title under the following headings:

Community Action *page 279*

Youth Involvement *page 279*

The Environment *page 279*

HOUSING AND NEIGHBORHOODS *page 280*
DOWNTOWN *page 280*
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Federal Departments issue lists of their agencies' films.

Other sources of films, most of which have descriptive listings available on request, are State universities, State conservation and other departments, film libraries, and film distributors (commercial firms which distribute public service and special interest films for private and organization showings often without cost to the borrower).

Additional directories useful in locating films:

A Critical Index of Films and Filmstrips in Conservation, 1967 edition, is available from the Conservation Foundation, 1250 Connecticut Ave. N.W., Washington, D.C. 20036.

NET Film Service Sales Catalogue. Lists 16mm sound films available for purchase or through rent-to-own plan. Indiana University Audio-Visual Center, Bloomington, Ind. 47401.

All films listed are in 16mm with sound.

Community Action

Community Action for Beauty. Community natural beauty projects are covered live or reenacted in various communities across the country to illustrate success. Mrs. Lyndon B. Johnson appears. 1967. 30 min. Color. Free loan. National Council of State Garden Clubs, 4401 Magnolia Ave., St. Louis, Mo. 63110. Also sale. Walter J. Klein Co., 1214 Elizabeth Ave., Charlotte, N.C. 28204.

Community Action for Recreation. Education Services Division, Public Relations Department, Montgomery Ward and Co., 619 W. Chicago Ave., Chicago, Ill. 60607.

She Planteth a Vineyard. Documents State Garden Clubs' activities and service in landscape design and flower-arranging schools, judging, community enhancement, publications, garden therapy among the blind, sick and imprisoned, and outstanding garden club projects. Mrs. Lyndon B. Johnson appears as an enthusiastic supporter. 1967. 30 min. Color. Sale. Walter J. Klein Co., 1214 Elizabeth Ave., Charlotte, N.C. 28204.

24th and Tomorrow. Local action against problems of litter, refuse disposal, housing violations; citizen enlightenment. Original jazz score. 1966. 22 min. Black and white. Rental. Fredric Martin Productions, 15A W. 64th St., New York, N.Y. 10023.

Youth Involvement

Discovery! Follows a group of elementary school pupils and their teachers as they observe plant and animal life, erosion, and reforestation in TVA's Conservation Education Center, Land Between the Lakes. 1967. 21 min. Color. Free loan. Tennessee Valley Authority, Knoxville, Tenn. 37902.

Down the Road. Young people show concern about pollution and other problems, to an original folk-rock ballad background. 1967. 20 min. Color. Produced by Allan Kitchel, Jr., Rental or sale. Text-Film Division, McGraw-Hill, 330 W. 42nd St., New York, N.Y. 10036.

We're On Our Way. Dramatizes for young people some of the things they can do to advance natural beauty and conservation. Includes on-site scenes of local projects which followed the 1966 National Youth Conference on Natural Beauty and Conservation. 1967. 26 min. Color. Free loan. Jam Handy Organization, 2821 E. Grand Blvd., Detroit, Mich. 48211.

The Environment

The Lost Frontier. Fate of earlier frontiers—

assaulted by urban sprawl, pollution, smog—demonstrates need for wise choices in management of remaining open lands. 1967. 28 min. Color. Free loan. Bureau of Land Management, Department of the Interior, Washington, D.C. 20240.

The Myths and the Parallels. Forceful and dramatic conservation message with original modern, popular music background. Silvermine Films, 49 W. 45th St., New York, N.Y. 10036.

Time to Begin. Scenes of magnificent Virginia countryside and metropolitan elegance contrast with evidences of neglect and indifference—trash, air and water pollution, auto graveyards, urban blight. Urges decision and action on desired environment. Produced by Colonial Williamsburg. 1965. 28 min. Color. Free loan. Department of Conservation and Economic Development, 911 E. Broad St., Richmond, Va. 23219.

Wayfarer. Wanderer along rough, rocky shore of the Pacific finds a chapel of glass in an oasis of beauty with colorful flowers, flowering shrubs, trees and evergreens. 22 min. Color. Rental or sale. New Church Book Center, 2129 Chestnut St., Philadelphia, Pa. 19103.

HOUSING AND NEIGHBORHOODS

Bulldozed America. Documentary on methods of land use for housing developments and freeways, with concern for future "livability." Produced by CBS Reports. 1965. 27 min. Black and white. Contact CBS, 51 W. 52nd St., New York, N.Y. 10019.

Mud. Urban erosion and sedimentation problems. 1967. 20 min. Color. Free loan. Department of Agriculture, Washington, D.C. 20250.

Open Space Communities—A New Environment for America. Planning and developing urban areas for a more interesting, attractive and beneficial environment. 1965. 28 min. Color. Free loan. Land Use and Development, National Association of Home Builders, 1625 L St. N.W., Washington, D.C. 20036.

To Build a Better City. Redevelopment projects in Canadian cities. Emphasizes problems that blighted areas pose to city administrators. Shows citizen participation in renewal and relocation. Produced by Pageant Production, Ltd. 1964. 16 min. Color. Central Mortgage and Housing Corp., Audio-Visual Aids, Ottawa 7, Canada.

Townscape Rediscovered. Program of urban renewal accomplishments in Victoria, British Columbia, a city of 60,000, from inception to completion. 1967. 29 min. Color. Free loan. Community Improvement Program, Centennial Commission, P.O. Box 1967, Ottawa, Canada.

The Neighborhoods. Appeal by a city-wide citizens' organization for neighborhood groups to work toward conserving and improving their own localities. Successful examples shown. 1964. 18 min. Black and white. Rental. San Francisco Planning and Urban Renewal Association (SPUR), 125 Post St., San Francisco, Calif. 94108.

DOWNTOWN

A City Reborn. Chronological view of the Mall in Fresno, Calif.—past, present and future. 1966. 21 min. Color. Victor Gruen & Associates (Architects), 6330 San Vicente Blvd., Los Angeles, Calif. 90048.

Decision for a City: Renewing the Central Business District. Explains urban renewal process in nontechnical terms, showing businesses before and after rehabilitation, or clearance and redevelopment. 1963. 30 min. Color. Free loan. Director of Community Organization, City Planning Associates, Inc., 524 E. McKinley Highway, Mishawaka, Ind. 46544.

Rebirth of a Nation: Story of Urban Renewal. Explains urban renewal process in small and medium sized cities in non-technical terms. Scenes of actual residential areas show housing conditions and public facilities before and after urban renewal. 1963. Free loan. Director of Community Organization, City Planning Associates, Inc., 524 E. McKinley Highway, Mishawaka, Ind. 46544.

OPEN SPACE

The Green City. Preserving nature's greenery in the crowded city and congested suburbs through HUD's Open Space Land Program. Produced by Stuart Finley. 1963. 22 min. Color. Available for rental at some film distributors. Sale. Stuart Finley, Inc., 3428 Mansfield Rd., Falls Church, Va. 22041.

Islands of Green. Small islands near urban communities are needed. National Audubon Society can help, as shown here. Produced by Stuart Finley with cooperation of the National Audubon Society, and the Forest Service of the Department of Agriculture. 1965. 24 min. Color. Free loan. Motion Picture Service, Department of Agriculture, Washington, D.C. 20250.

Nature Next Door. Importance to city dweller of natural beauty near at hand as urban centers grow. Produced by Dr. Robert Stebbins for Sierra Club. 1959. 27 min. Color. Free loan. Association Films (Distributors), 25358 Cypress Ave., Hayward, Calif. 94544.

WATERFRONTS

The Rising Tide. The economic comeback of the town of New Bedford, Mass., using Area Redevelopment Administration programs. Narrated by Chet Huntley. 1964. 28 min. Black and white. Free loan. Princeton Television Center, Princeton, N.J. 08541. And from Department of Housing and Urban Development, Washington, D.C. 20410.

NOISE

Noise: The New Pollutant. Reports on research into harmful effects of noise on human beings. Produced for National Educational Television with a grant from Acoustical Materials Association. 1967. 30 min. Black and white. Rental or sale. NET Film Service, Indiana University, Audio-Visual Center, Bloomington, Ind. 47401.

COMMUNITY AS A WHOLE

Battleground, U.S.A. A hypothetical community goes downhill—slums, crime and juvenile delinquency mount until awakening citizen action starts to take hold. Produced by Department of Community Development, Southern Illinois University. 1961. 27 min. Black and white. Preview rental, sale. Audio-Visual Department, Southern Illinois University, Carbondale, Ill. 62901.

Design for a City. Successful planning and execution of a comprehensive urban renewal program in Philadelphia, emphasizing teamwork by government, planners, architects, citizens' organizations and the public. In cooperation with American Institute of Architects. 1963. 27 min. Color. Free loan. Reynolds Metal Co., Public Relations Department, Richmond, Va. 23210.

Give and Go. Three communities find that each of them has problems related to the others, and that local governments can help each other. Produced by WQED, Pittsburgh, Pa. 1963. 28 min. Color. Department of Internal Affairs, Commonwealth of Pennsylvania, Harrisburg, Pa. 17101.

Housing and Nature. Relates urban problems in Helsinki. 1966. 29 min. Color. Free loan. Finnish Embassy, 1900 24th St., N.W., Washington, D.C. 20008.

Land of Hawaii. Resource development projects. 1967. 15 min. Color. Free loan. Soil Conservation Service offices or Department of Agriculture Motion Picture Service, Washington, D.C. 20250.

No Time for Ugliness. Sets forth problems and some alternatives inherent in many communities.

1965. 26 min. Color. Free loan. American Institute of Architects, 1735 New York Ave., N.W., Washington, D.C. 20006.

PLANNING—URBAN

Community Growth: Crisis and Challenge. New methods for achieving improved residential land use patterns, such as cluster zoning, planned-unit development and imaginative use of townhouses. 1962. 17 min. Color. Free loan. National Association of Home Builders, 1625 L St., N.W., Washington, D.C. 20036.

PLANNING—REGIONAL

Potomac Concept. Follows the ugliness, pollution and blight along the watershed from sources high in the mountains of four States to Chesapeake Bay. Relates importance of the President's Plan for securing local, State and national government and private cooperation to assure a model river basin, supplying pure water for human, industrial, recreational and wildlife uses. Produced for the National Park Service, Department of the Interior, by Stuart Finley. 1964. 29 min. Color. Free loan. National Park Service, Department of the Interior, Washington, D.C. 20240.

METROPOLITAN REGION

The Changing City. Metropolitan growth and its effect on the lives of people. Shows suburban land use, transportation, and core city problems. Explores metropolitan planning and coordination. 1963. 16 min. Color. Churchill Films, 6671 Sunset Blvd., Los Angeles, Calif. 90028.

Lewis Mumford on the City. Series of 6 half-hour films study the city as it was, as we know it now, and as it may be. Based on Mr. Mumford's book, "The City in History." Produced by National Film Board of Canada. 1963. Black and white. Rental. Contemporary Films, Sterling Educational Films, William M. Dennis Film Libraries, other distributors and libraries.

Man-made Chaos or Beauty. Contrasts good civic design with ugliness, squalor, monotony in our cities and suburbs. Shows possibilities of shopping centers, new street furniture, signs, and enhancement of natural landscape and terrain. 1964. 21 min. Color. Rental. University of Chicago, Industrial Relations Center, 1225 E. 60th St., Chicago, Ill. 60637.

Metropolis—Creator or Destroyer? 8 films on character of cities and suburbs. Based on book "Metropolis: Values in Conflict" by C. E. Elias, Jr., and others. Sponsored by National Educational Television and the University Council on Education for Public Responsibility. 1963. 30 min. each. Black and white. Rental, sale. Audio-Visual Center, Indiana University, Bloomington, Ind. 47405.

Tomorrow's Government Today. Deals with the rapid changes taking place in urban living, and resulting complex problems facing municipal government. 1964. 27 min. Color. Rental or sale. International City Managers Association, 1140 Connecticut Ave., N.W., Washington, D.C. 20035.

Pollution

SOLID WASTE

The 3rd Pollution. Solid waste problem, management and technology. Produced by Stuart Finley with American Public Works Association and Office of Solid Waste. 1966. 20 min. Color. Free loan. Office of Solid Waste, Public Health Service, Department of Health, Education, and Welfare, Washington, D.C. 20201.

LITTER

Let's Keep America Beautiful. Litterbug problem presented against backdrop of beautiful mountains, lakes, beaches and streams. Developed by Richfield Oil Corp. 1961. 14 min. Color. Free loan from film distributors. Sale. Keep America Beautiful, Inc., 99 Park Ave., New York, N.Y. 10016.

Litterbug. Cartoon urging old and young to keep highways, parks, beaches and natural resource areas everywhere clean and free of refuse. Produced by Walt Disney. 1960. 8 min. Color. New York State Department of Conservation, Albany, N.Y. 12210.

Litterly Speaking. Primarily for high school students, but good for anybody, to make them aware of problems and dangers arising from littering. Promotes organized antilitter efforts. Produced by John Campbell, Inc. 1967. 24 min. Color. New York State Department of Conservation, Albany, N.Y. 12210.

Heritage of Splendor. Citizen's responsibility in keeping forests, mountains, parks and beaches from harm done by careless litterers, with humorous litterbug sequence. Narrated by Ronald Reagan. Developed by Richfield Oil Corp. 1963. 18 min. Color. Free loan. Modern Talking Picture Service regional offices. Also sale, Alfred Higgins Productions, 9100 Sunset Blvd., Hollywood, Calif. 90069.

A Nation of Spoilers. Litter spoils famous natural beauty spots, vandalism scars monuments, destroys highway and other information signs. Produced by Alfred Higgins Productions, assisted by National Park Service, Department of the Interior, and Keep America Beautiful, Inc. 1965. 11 min. Color. Sale. Alfred Higgins Productions, 9100 Sunset Blvd., Hollywood, Calif. 90069.

The Rural Environment

WATER RESOURCES

From the Ridge to the River. A community works as a team to solve its flood problems. 1955. 26 min. Free loan. Local Soil Conservation Service offices, or Department of Agriculture, Washington, D.C. 20250.

Headwaters. Small, clear, fast-flowing streams, the upper reaches of larger, more famous streams, are valuable to the increasingly urbanized environment, but are threatened by thoughtless use of the land. Produced by Charles and Elizabeth Schwartz for the Missouri Department of Conservation. 1966. 30 min. Color. Sale; free loan in Missouri. Missouri Department of Conservation, Box 180, Jefferson City, Mo. 65101.

Marshland Is Not Wasteland. Focuses attention on fast disappearing wildlife area. Clarifies the role of coastal marshes in the preservation and enhancement of many important species of fish, 1962. 14 min. Color. New York State Conservation Department, Albany, N.Y. 12226.

Pipeline to the Clouds. Importance of safe community water supply is stressed. Examines water sources, techniques of water treatment, causes of water shortages, and measures citizens can take. 1966. 25 min. Color. Rental, sale. General Electric Co., 60 Washington Ave., Schenectady, N.Y. 12305.

Water resource related films produced by Stuart Finley on particular problems:

Teamwork on the Potomac—how to clean up a polluted river;

Water-Resourcefulness—how to devise a State water resources program;

Crisis on the Kanawha—how to control industrial wastes;

A Horseshoe Nail—how to form an interstate river compact;

Coal and Water—how to cope with acid mine drainage;

Renaissance of a River—how to understand your river valley;

Beargrass Creek—how to control municipal water pollution;

To the Century River—how to evaluate a river valley's resources.

Free loan at film libraries. Sale. Stuart Finley, Inc., 3428 Mansfield Rd., Falls Church, Va. 22041.

Wild Rivers. Dramatizes challenge to preserve, restore, and use scenic and historic rivers. Produced by Larry Madison, for the Department of the Interior and the Humble Oil and Refining Company. 1966. 28 min. Color. Sound. Free loan. Modern Talking Picture Service, 1212 Avenue of the Americas, New York, N.Y. 10036.

OUTDOOR RECREATION

Rural Holidays. Rural outdoor recreation enterprises. 1964. 25 min. Color. Free loan. Local Soil Conservation Service offices or Department of Agriculture, Washington, D.C. 20250.

Land Between the Lakes. Wooded area with 300 miles of shoreline between two manmade reservoirs being developed by TVA as a multipurpose outdoor recreation area, including conservation education facilities. 1966. 13 min. Color. Free loan. Tennessee Valley Authority, Knoxville, Tenn. 37902.

Transportation

Guideposts for Growth. Hartford, Conn. Area Traffic Study portrays tools and techniques developed to compute effects of land use on transportation movement and transportation facilities on land use. Shows how planning should use these findings. 1963. 28 min. Color. Free loan. Public Relations Director, Connecticut Highway Department, Hartford, Conn. 06103.

The View

The Lawns of America. Outstanding lawns of the United States, public and private, at homes and at public buildings. Mrs. Lyndon B. Johnson shown on a national tour. 1967. Produced for the National Council of State Garden Clubs. 30 min. Color. Sale. Walter J. Klein Co., 1214 Elizabeth Ave., Charlotte, N.C. 28204.

New Guidelines for the Well-Landscaped Home. Outlines what one should know before undertaking any landscaping project. Examples of successful landscapes, uses for trees and plantings, ideas for incorporating stone, fencing, and outdoor furnishings. Produced by Sun Dial Films. 1966. 13 min. Color. Free loan. American Association of Nurserymen, 835 Southern Bldg., Washington, D.C. 20005.

Trees and Their Care. Covers principal phases of shade tree care. Produced for the International Shade Tree Conference. 1961. 29 min. Color. Rental. International Film Bureau, 332 S. Michigan Blvd., Chicago, Ill. 60604.

What's Happening to Our Landscape? Clutter problem in Wisconsin in contrast with some of its most inviting scenery, with some specific solutions: Screening auto graveyards with trees, installing electrical services underground, sanitary land fill dumping systems. 1965. 20 min. Color. Rental. Bureau of Audio-Visual Instruction, University of Wisconsin, 1312 W. Johnson St., Madison, Wis. 53706.

LOCAL AGENCIES WHICH CAN HELP

In addition to the associations of local governments listed here, municipal, community or other local agencies which can be of service to individuals or groups seeking action are parks and recreation departments, water boards, planning boards and public utilities.

Council of State Governments, 1755 Massachusetts Avenue, N.W., Washington, D.C. 20003. Joint agency of all the States' governments, created, supported and directed by them to serve the governments' progress within the States, among the States together, and by the States in their relations with the Federal Government.

National Association of Counties, 1001 Connecticut Avenue, N.W., Washington, D.C. 20036. Membership organization representing county governments and elected county officials. Purpose is to stimulate and contribute to continuing improvement of county government through increased efficiency and higher standards of public service. Publishes monthly magazine containing a section on parks and recreation. Research Foundation produces reports in depth on such subjects for county action as water pollution and outdoor recreation.

National League of Cities, 1612 K Street N.W., Washington, D.C. 20006. Association of city and town governments in State leagues, supported by their public funds, to aid municipal leaders in day-to-day problems. Offers research services.

U.S. Conference of Mayors, 1707 H Street N.W., Washington, D.C. 20006. Agency of elected executives of Nation's major cities, supported from public budgets of those municipalities, to serve as a forum and clearinghouse for solutions to urban problems. Encourages municipal cooperation, promotes improved municipal administration, fosters proper and adequate relations between the Federal Government and the cities.

STATE AGENCIES WHICH CAN HELP

President Johnson, in his closing remarks to the White House Conference on Natural Beauty in May 1965, asked the delegates to suggest to their Governors that similar conferences be held in the States.

The following list reports conferences held in 39 States since May 1965 on natural beauty and related concerns. Although most of the conferences listed were stimulated by the White House Conference, some were not—for instance, there are examples included which are in a series of annual Governors Conferences reflecting broad environmental quality concerns, and are therefore reported here to present as complete an outline as possible of States' activities. In most cases reports or proceedings of these statewide conferences have been published.

The list also provides a point of contact in each State to which inquiries relating to natural beauty action may be addressed. In addition, the Executive Office of the Governor in each State can help interested citizens contact appropriate State agencies. Each Governor has appointed a liaison officer as the State's official representative to the Department of the Interior's Bureau of Outdoor Recreation.

State universities and community colleges are often able to provide not only educational but advisory services on community and regional problems. State agricultural experiment stations, land-grant colleges and schools of forestry conduct research on environmental quality and specific human environmental needs and values. Staff specialists provide consultation and advice for problem solving and action programs.

State historical commissions, libraries, committees on the arts and humanities all can be helpful.

Alabama

Administrator; Alabama Planning and Industrial Development Board, Administrative Bldg., Montgomery 36104. Director; Department of Conservation, Administrative Bldg., Montgomery 36104.

Alaska

Commissioner; Department of Natural Resources, Division of Agriculture, Box 800, Palmer 99645.

Arizona

Governor's Conferences on Arizona Beauty, Phoenix, 1965 and 1967. Chairman; Governor's Commission on Arizona Beauty, 206 S. 17th Ave., Phoenix 85007.

Arkansas

Governor's Conference on Arkansas Beauty, Little Rock, 1965. Beautification Coordinator; Planning Commission, Capitol Hall, Little Rock, 72201. Chairman; State Beautification Advisory Council, 222 National Old Line Bldg., Little Rock 72201.

California

Conference on California Beauty, Los Angeles, 1966. Director; Department of Parks and Recreation, P.O. Box 2390, Sacramento 98511.

Colorado

Annual Governor's Conferences on Parks and Recreation, 1965, 1966, and 1967. Director; Game, Fish and Parks Department, 6060 N. Broadway, Denver 80216.

Connecticut

Governor's Conference on Natural and Environmental Beauty, Hartford, 1966. Commissioner; Highway Department, 24 Wolcott Rd., P.O. Drawer A, Wethersfield 06109.

Delaware

Director; Planning Office, 45 The Green, Dover 19901.

Florida

Governor's Conference on Natural Beauty, Tallahassee, 1967. Director; Outdoor Recreational Development Council, 1543 Thomasville Rd., Tallahassee 32303.

Georgia

Director; Department of State Parks, Seven Hunter St., S.W., Atlanta 30334.

Hawaii

Governor's Conference on Natural Beauty and Community Appearance, Honolulu, 1966. Director; Department of Planning and Economic Development, 426 Queen St., Honolulu 96813.

Idaho

Governor's Antilittering and Beautification Conference, Boise, 1966. Office of the Governor, Boise 83707.

Illinois

Keep Illinois Beautiful Conference, Springfield, 1965. Illinois Outdoor Recreation Conference, Zion, 1965. Coordinator; Keep Illinois Beautiful Program, Department of Public Works and Buildings, Room 602, State Office Bldg., Springfield 62706. Director; Department of Business and Economic Development, Springfield 62706.

Indiana

Governor's Conference on Natural Resources and Natural Beauty, Indianapolis, 1965. Director; Department of Natural Resources, Indianapolis 46204.

Iowa

Iowa Conference on Natural Beauty, Des Moines, 1966 (sponsored by Iowa Committee on Natural Beauty). Director; Conservation Commission, East 7th and Court Ave., Des Moines 50308.

Kansas

Director; State Park and Resources Authority, 801 Harrison St., Topeka 66612.

Kentucky

Kentucky Clean-up and Beautification Conferences, 1965, 1966, and 1967. Director; Division of Clean-up and Beautification, Department of Natural Resources, Frankfort 40601.

Louisiana

Executive Director; Commission on Intergovernmental Relations, P.O. Box 44316, State Capitol, Baton Rouge 70804. Coordinator of Special Projects; Department of Highways, Highway Bldg., Baton Rouge 70804.

Maine

Governor's Conference on Natural Beauty, Augusta, 1966. Director; State Park and Recreation Commission, State House, Augusta 04330.

Maryland

Governor's Conference on Recreation and Parks, Gaithersburg, 1966; Wheaton, 1967. Director; Department of Forests and Parks, State Office Bldg., Annapolis 21401. Director; Planning Department, Room 1103, State Office Bldg., Annapolis 21401.

Massachusetts

Governor's Conference on Natural Beauty, Boston, 1967. Commissioner; Department of Natural Resources, State Office Bldg., Government Center, 100 Cambridge St., Boston 02202. Chairman; Governor's Committee on Natural Beauty, State House, Boston 02133.

Michigan

Governor's Conference on Natural Beauty for Michigan, Lansing, 1965. Director; Department of Conservation, Mason Bldg., Lansing 48926.

Minnesota

Governor's Conference on Keeping Minnesota Green and Scenic, 1965. Governor's Conference on Natural Beauty, 1968. Supervisor; Bureau of Information, Department of Conservation, 301 Centennial Bldg., 658 Cedar St., St. Paul 55101.

Mississippi

Executive Director; Park System, 1104 Woolfolk Bldg., Jackson 39201.

Missouri

Governor's Conference on Natural Beauty, Kansas City, 1967. Executive Secretary; Inter-agency Council for Outdoor Recreation, 1203 Jefferson Bldg., Box 564, Jefferson City 65101.

Montana

Chief; Recreation and Parks Division, Department of Fish and Game, Mitchell Bldg., Helena 59601.

Nebraska

Governor's Conference on Natural Beauty, Lincoln, 1966. (Sponsored by Governor's Council to Keep Nebraska Beautiful). Director; Game and Parks Commission, Capitol Bldg., Lincoln 68509.

Nevada

Five conferences on various phases of beautification, 1965 and 1966 (two sponsored by the Governor's Office through the Department of Conservation and Natural Resources; three sponsored by the Governor's Beautify Nevada Committee). Director: Department of Conservation and Natural Resources, Nye Bldg., Carson City 89701. Chairman: Beautify Nevada Committee, Cooperative Extension Service, Max C. Fleischmann, College of Agriculture, University of Nevada, Reno 89507.

New Hampshire

Governor's Conference on Natural Beauty, Concord, 1966. Commissioner; Department of Resources and Economic Development, 318 State Office Bldg., Concord 03301. Chairman; Governor's Committee on Natural Beauty, 4 Webster Terr., Hanover 03755.

New Jersey

Governor's Conference on Natural Beauty, Atlantic City, 1966. Commissioner; Department of Conservation & Economic Development, P.O. Box 1390, Trenton 08625.

New Mexico

Governor's Conferences on Environmental Health Planning, Albuquerque, 1966; Santa Fe, 1967. Planning Officer; Planning Office, New Capitol Bldg., Room 406, Santa Fe 87501. Chairman; Governor's Committee to Keep New Mexico Beautiful, 417 Carlisle Blvd., S.E., Albuquerque 87106.

New York

Governor's Conference on Natural Beauty, New York, 1966. Director; Natural Beauty Programs, Natural Beauty Commission, Office for Local Government, Albany 12224.

North Carolina

Governor's Conference on Beautification, Raleigh, 1966. Chairman; Advisory Commission on Beautification, Department of Conservation and Development, Raleigh 27601.

North Dakota

North Dakota State Beautification Conference, Bismarck, 1965. Secretary; Economic Development Commission, State Capitol, Bismarck 58501. Coordinator; Outdoor Recreation Agency, 107 S. Fifth St., Bismarck 58501.

Ohio

Workshop Conference on Natural Beauty, Columbus, 1966. (Sponsored by Ohio State University Natural Resources Institute). Director; Department of Natural Resources, 907 Ohio Departments Bldg., Columbus 43215.

Oklahoma

Oklahoma Conference on Community Beauty, Norman, 1967. (Sponsored by University of Oklahoma, Sears, Roebuck Foundation, and Keep Oklahoma Beautiful). Director; Industrial Development and Park Department, Oklahoma City 73105.

Oregon

Governor's Conference on Beautiful Oregon, Salem, 1965. Executive Secretary; Natural Resources Committee, Room 124, State Capitol, Salem 97310.

Pennsylvania

Governor's Conference on Natural Beauty, Hershey, 1966. Secretary; Department of Forests and Waters, Education Bldg., P.O. Box 1467, Harrisburg 17105.

Rhode Island

Governor's Conference on Natural Beauty, Providence, 1965. Program Coordinator; Governor's Program to Keep Rhode Island Beautiful, Roger Williams Bldg., Providence 02908.

South Carolina

Seminar on Natural Beauty, Columbia, 1965 (sponsored by Committee on Beautification and Community Development, University of South Carolina, and Sears, Roebuck Foundation). Governor's Beautification Conference, Columbia, 1967. Director; Department of Parks, Recreation and Tourism, Box 1358, Columbia 29202. Chairman; Governor's Beautification and Community Improvement Board, 1813 Main St., Columbia 29201.

South Dakota

Director; Department of Game, Fish and Parks, State Office Building, Pierre 57501.

Tennessee

Executive Director; State Planning Commission, C2–208 Central Services Bldg., Nashville 37219.

Texas

Our Environmental Crisis Conference, Austin, 1965 (sponsored by the University of Texas School of Architecture). Beautiful Texas—Invitation to Action Conference, Dallas, 1966 (sponsored by Southern Methodist University). Director; Parks and Wildlife Department, Regan State Bldg., Austin 78701.

Utah

Executive Director; Department of Natural Resources, 435 State Capitol, Salt Lake City 84114.

Vermont

Governor's Conference on Natural Beauty, Montpelier, 1966. Director; Central Planning Office, 118 State St., Montpelier 05602.

Virginia

Governor's Conference on Natural Beauty, Richmond, 1965. Chairman; Commission of Outdoor Recreation, Ninth St. Office Bldg., Ninth and Grace Sts., Richmond 23219. Director; Department of Conservation and Economic Development, 911 E. Broad St., Richmond 23219.

Washington

Design for Washington Conference, Seattle, 1965. Decisions for Progress Conference, Seattle, 1966. Executive Director; Design for Washington, 312 First Ave. N., Seattle 98109. Administrator; Interagency Committee for Outdoor Recreation, 114 N. Columbia St., Olympia 98502.

West Virginia

Keep West Virginia Beautiful Conference, Charleston, 1967. Governor's Conference on Beautification and Planning, Charleston, 1967. Commissioner; Department of Commerce, State Capitol, Charleston 25305. Special Programs Coordinator, Cleanup and Beautification Program, Charleston 25311.

Wisconsin

Governor's Conference on Natural Beauty, 1965; 1966. Quest for Quality in Wisconsin—Conservation Centennial Symposium, Madison, 1967. Administrator; Council on Natural Beauty, Department of Natural Resources, Box 450, Madison 53701. Secretary; Governor's Committee to Keep Wisconsin Green and Beautiful, c/o State Highway Commission, State Office Bldg., 1 W. Wilson St., Madison 53702.

Wyoming

Governor's Conference on Outdoor Recreation and Natural Beauty, Casper, 1966. Executive Director; Recreation Commission, State Office Bldg., Box 309, Cheyenne 82001.

District of Columbia

Chairman; District of Columbia Interagency Committee on Beautification Programs, 306 District Bldg., 14th and E Sts., N.W., Washington 20004. Executive Director; The First Lady's Committee for a More Beautiful Capital, 1229 19th St., N.W., Washington 20036.

Guam

Seminar on Natural Beauty, Agana, 1966. Office of the Governor, Agana, Guam 96910.

Puerto Rico

Administrator; Puerto Rico Parks and Recreation Administration, P.O. Box 3207, San Juan 00904.

Virgin Islands

Eastern Caribbean Conservation Conference, Caneel Bay, 1965 (sponsored by Virgin Islands Government, College of Virgin Islands, and American Conservation Association). Commissioner; Virgin Islands Department of Agriculture, Christiansted, St. Croix 00820.

FEDERAL AGENCIES WHICH CAN HELP

Federal departments and independent agencies are listed alphabetically, with individual Bureaus and Offices listed under their respective departments.

Only those agencies offering services are included, and only those programs and functions of the agencies directly related to the problems outlined in the report.

Some directories and catalogues with comprehensive descriptions of Federal services are listed below with their sources, both government and private.

Catalog of Federal Assistance Programs. Describes programs of financial and technical assistance to local and State governments, private organizations, and individuals. Purposes, eligibility and other requirements, authority, and related publications are covered. 1967. 700 pages. Available for reference at libraries, from local Community Action Program offices or from the Information Center, Office of Economic Opportunity, 1200 19th St., N.W., Washington, D.C. 20506.

Catalog and Other Information Sources on Federal and State Aid Programs: A Selected Bibliography. 1967. 26 pages. Free. Advisory Commission on Intergovernmental Relations, 1800 G St., N.W., Washington, D.C. 20402.

Federal Aids to Local Governments Service. Subscription service published in loose-leaf format, sold by the year. Describes and lists regional contacts of more than 100 Federal programs designed to help local governments solve physical and social problems of urban areas. New programs and changes in existing programs are reported to subscribers on new pages for insertion into loose-leaf binder. Service began in 1966, currently about 200 pages. $20 yearly to members of National League of Cities, $40 to nonmembers. National League of Cities Information Service, 1612 K St., N.W., Washington, D.C. 20006.

Federal Assistance in Outdoor Recreation. Describes briefly more than 60 agencies' financial and technical aids to State and local governments, private organizations and individuals. Many programs are directly related to natural beauty. Regional office contacts are listed. 1966. 83 pages. 35 cents. Bureau of Outdoor Recreation, Department of the Interior, Washington, D.C. 20240.

Federal Assistance for Recreation and Parks. Describes more than 60 Federal programs of aid to local and State agencies and nonprofit private organizations for projects related to parks, recreation, cultural programs, conservation, natural beauty, historic preservation, and fish and wildlife. Lists regional offices of Federal agencies. Loose-leaf format in binder. 1966. 178 pages. $20 to members of National Recreation and Park Association, $35 to nonmembers. National Recreation and Park Association, 1700 Pennsylvania Avenue, N.W., Washington, D.C. 20006.

Federal Outdoor Recreation Programs. Federal efforts directly or indirectly affecting outdoor recreation. By the Department of the Interior. 1968. 224 pages. $1.75. Superintendent of Documents, Washington, D.C. 20402.

National Association of Counties Federal Aid Service. County governments may subscribe to this service and receive regular mailings describing Federal aid programs. In addition they are eligible for an inquiry answering service. National Association of Counties, 1001 Connecticut Avenue, Washington, D.C. 20036.

Advisory Commission on Intergovernmental Relations

Washington, D.C. 20575

Provides advisory services to State and local officials and public interest groups on problems of intergovernmental relations within the framework of the Commission's studies and recommendations—for example, advice on orderly growth in metropolitan areas. Publishes studies containing recommendations, including yearly State Legislative Program. Maintains library.

Department of Agriculture

Washington, D.C. 20250

Agricultural Research Service provides information and progress reports on its work in soil and water conservation and other environmental improvement efforts. One specific area of research aims to develop improved varieties of ornamental plant materials, varieties more tolerant of urban growing conditions, for example. Work may be carried on cooperatively with State universities.

Agricultural Stabilization and Conservation Service administers Cropland Adjustment Program which provides financial assistance to farmers to convert cropland to open space, wildlife habitat, natural beauty and outdoor recreation uses, including provision for public access. Its Greenspan

Program helps States and local governments buy and improve cropland for preservation of open space, natural beauty, wildlife development, recreation, or prevention of air or water pollution. Agricultural Conservation Program can share with farmers the cost of tree planting, pond building, sediment control, natural beauty enhancement, wildlife habitat development and other soil, water and wildlife conservation practices.

Cooperative State Research Service makes grants to State agricultural experiment stations, land-grant colleges, schools of forestry and other qualified institutions for research related to environmental quality and specific human environmental needs and values.

Farmers Home Administration provides credit and technical management assistance to farm families and associations for conservation and development of rural lands, including outdoor recreation facilities such as golf courses, trails, ponds, lakes and shooting preserves. Watershed projects may provide municipal water supply, flood protection, and recreation. Makes loans and grants to public and nonprofit organizations for construction of rural community water and waste disposal systems. Also assists individuals in purchase and improvement of farm, and housing for rural residents. Rural Renewal Program provides planning, technical assistance, and loans for projects for conservation and land utilization in areas where agriculture or forestry contribute substantially to the economy and where there is chronic unemployment. Offices in each State and in many counties.

Federal Extension Service offers continuing education programs in agriculture, resource development, recreation, and related subjects, including counsel on natural beauty efforts—from suitable plant materials to land use planning. Extension agents also can suggest sources for further technical information. Offices at State land-grant colleges and universities, and in most counties.

Forest Service manages the National Forests and Grasslands to ensure multiple-use and sustained yield of renewable natural resources. Conducts research in forest and other wild land management, forest fire control, forest insect and disease control, forest products utilization and forest economics. Through Cooperative Forestry Programs provides technical and financial aid to State, local, and private forest landowners in cooperation with State agencies to encourage better fire, insect, and disease protection; better multiple-use management practices; increased tree planting for windbreaks, shelterbelts, and forests; and improved practices in harvesting, processing and marketing forest products. Offices in 16 cities. In addition, field offices of forest supervisors, ranger districts, research projects and Cooperative Programs throughout the United States.

Rural Community Development Service provides stimulation and coordination of Federal activities—including programs for outdoor recreation and open space—to help people in rural communities achieve social and economic improvement.

Rural Electrification Administration makes loans for financing electrical systems and telephone service in rural areas to cooperatives and other public bodies. Technical assistance is available to borrowers on engineering, legal and other aspects of underground utilities. Planning, management, credit-financing and similar kinds of assistance also are available to borrowers.

Soil Conservation Service provides technical assistance through local soil and water conservation districts in land use and conservation treatment. Its Small Watershed Program offers planning, technical, and financial assistance on a Federal-local share basis for public and nonprofit projects to provide flood control, water storage and management, public recreation, and fish and wildlife protection and production. SCS provides leadership in Resource Conservation and Development Projects as a base for economic development by providing technical and financial assistance to local sponsors. SCS also conducts soil surveys for both agricultural and nonagricultural uses, water supply forecasting. Publishes basic data relating to water conservation needs, land use and related subjects.

Technical Action Panels are composed of heads of Department of Agriculture and other Federal and State agencies whose programs benefit rural people to assist rural individuals and groups to identify the services they need for economic, social, and cultural growth and to locate and secure needed services. Technical assistance also with economic plans, community development projects, inventories, and surveys. Available in all States and counties through Department offices.

Appalachian Regional Commission

1666 Connecticut Ave., Washington, D.C. 20235

Coordinates regional development programs authorized in the Appalachian Act. Establishes policy guidelines, sets fund allocations and procedures, and approves project recommendations from the States. Project funding and administration may be assigned to other Federal agencies. Areas of concern include highway location and construction, land stabilization and conservation, mine area reclamation, and water resources control.

Citizens' Advisory Committee on Recreation and Natural Beauty

1700 Pennsylvania Ave., N.W., Washington, D.C. 20006

Consists of 12 members appointed by the President to advise the President and the President's Council on Recreation and Natural Beauty on coordination, progress and possibilities relating to natural beauty and outdoor recreation—including Federal, State and local government and private activities.

Department of Commerce

Washington, D.C. 20230

Business and Defense Services Administration offers a consulting service to business on industrial problems including those relating to air pollution, water pollution, and to scrap and other waste disposal. The service includes locating government agencies capable of dealing with a particular problem. Encourages and assists industries to open private lands for recreation use, and to manage commercial forest land so as to enhance their appearance from the road. Makes available reports of studies on such subjects as recycling junk motor vehicles, use of high sulfur fuels, industrial uses of water resources, and outdoor lighting for playgrounds and parks. Publishes both periodical and special reports, including economic, marketing and statistical reports.

Economic Development Administration provides assistance in regions of high unemployment or low family income. Direct technical assistance may be provided by staff or consultants. Grants may be made for planning; grants and loans may be made for public works and other development such as water systems, industrial parks, roads to scenic and recreation areas, parks and recreation areas, marinas, historic restorations, and State park recreation areas. EDA has published reports on economical ways of removing and processing junk cars, practical methods of tannery waste disposal, and test methods of controlling special kinds of air pollution. Seven field offices.

Environmental Science Services Administration serves public agencies and the public in efforts to protect woodlands, ranges, waterways and coastal areas against fire, flood, and storm. Has six services: Fire Weather, Agricultural Weather, River and Flood, Continental Shelf, Environmental Data, and Air Pollution. The Air Pollution Service is developing methods to forecast those atmospheric conditions which favor hazardous pollution concentrations as a basis for control at industrial and other sources; and is conducting studies of the natural transport, dilution and removal of air pollutants.

Department of Defense
The Pentagon, Washington, D.C. 20301

The Department's military installations have a total acreage of 27.6 million on American territory. Individual installations constitute planned communities equivalent to comparable sized cities and towns. Efforts in soil and water conservation, dust control, pest control, sound abatement, landscape design, "pride of ownership" programs among housing occupants, forest management, fish and wildlife conservation, recreational uses of land, and air and water pollution abatement are administered by professionals trained in agronomy, achitecture, biology, entomology, forestry, landscape architecture, master planning and sanitary engineering. Many military installations now have Conservation and Beautification Committees which coordinate these activities with local civilian groups.

Corps of Engineers, Department of the Army, conducts a Civil Works Program to construct multiple-purpose water resource development projects. Its Water Resources Development Program provides financial assistance for multi-purpose dams, and canalization and dredging projects. Individuals may request a survey of project need through their U.S. Senator or Representative. The Corps is authorized to construct, maintain and operate public park and recreational facilities at its project areas, and to permit local interests to do so. The Corps constructs beach erosion control projects in park and recreation areas owned by non-Federal agencies, and develops small boat refuge harbors for recreational craft. Efforts are made during all construction to preserve fish and wildlife, woodlands, historic, archaeological, and scenic resources, and to restore landscape features disturbed during construction. Hearings are held during project planning stages to permit expression of public views. District and Division offices now have staff specialists assigned full-time to planning and development for environmental beauty.

Delaware River Basin Commission
Trenton, N.J. 08628

Coordinates, and carries out plans, policies and projects for water conservation, control, use, and management throughout the Basin. Encourages planning, development, and financing of water resources projects including features for protection of fish and wildlife, conservation of soil and water, and recreation.

Federal Power Commission
441 G St., N.W., Washington, D.C. 20426

Licenses and regulates jurisdictional non-Federal projects involving hydroelectric power. Such projects must be in accord with a comprehensive plan for beneficial uses of the waterway, including recreation. Licenses for such projects may include provisions for water quality control, requirements for minimum releases from reservoirs, erosion and siltation controls, restoration of landscape disturbed during construction, protection and development of scenic vistas and areas of natural beauty, and measures for protecting and enhancing fish, wildlife, and recreation resources affected by a project. FPC offers technical advice and services to State and local governments and individuals in connection with projects either under license or at any stage of application for license; encourages research on construction of future power transmission lines with emphasis on new technologies of both underground and overhead high-voltage transmission and appearance of facilities. Five regional offices.

General Services Administration
Washington, D.C. 20405

Administers programs to use or dispose of surplus Federal property. May convey real property suitable for public park or recreation purposes to local governments at 50 percent of market value, and property suitable for historic monuments at no cost. May also convey certain surplus lands to State or local governments for wildlife conservation purposes at no cost. GSA is responsible for design, construction, and maintenance of most Federal buildings and their grounds.

Department of Health, Education, and Welfare
Washington, D.C. 20201

The National Center for Air Pollution Control (a part of the Public Health Service) makes grants for developing programs for air pollution control, establishing control agencies, and improvement of existing programs, local, regional or State agencies. Federal funds match those agency funds which exceed the previous year's expenditures on a two-for-one basis (three-for-one to regional organizations). Grants also are available to public bodies surveying community air pollution control requirements. Technical assistance on specific air pollution problems, and in the planning of air resource management programs is available to air pollution control agencies and other public or private agencies or organizations. Personnel training courses also are available.

The Office of Education administers programs to support and improve primary, secondary, vocational, adult and higher education and library services. Work in conservation education includes curriculum development in conjunction with local and State school systems, assistance to conservation and education organizations, and support of research. Innovative centers grants are made to local school systems for conservation education projects to teach children about wildlife, weather, horticulture, agriculture, and other aspects of natural resources. Teacher institutes in geography often include conservation as a component. Grants are available for adult education under Title I of the Higher Education Act of 1965 for projects in which college or university resources are directly applied through continuing education programs to community problems—including land-use planning, and conservation of air, land, and water.

The National Center for Urban and Industrial Health, Office of Solid Waste, conducts research in methods of, and controls over, waste disposal and makes grants to State and local agencies for solid waste disposal. The Environmental Sanitation Program conducts a national program of technical assistance and standards development on environmental health activities relating to recreation, including parks, swimming pools and natural bathing places, camping areas, recreation vehicle parking areas, tourist accommodations, highway rest stops, general recreation sanitation problems, and on housing hygiene, urban noise and crowding, food protection; conducts and supports research and training.

The Office of Surplus Property Utilization makes surplus real property available for development as arboretums and nature study areas, for forestry and agricultural demonstration and study projects, all as a part of school, college or university curriculums, and for oceanographic and other marine research as a part of educational programs. Surplus land is also conveyed for sanitary land fills under health programs.

Department of Housing and Urban Development

Washington, D.C. 20411

The Federal Housing Administration operates loan insurance programs for housing improvement. FHA's mortgage insurance may cover individual homeownership and home improvement, rental housing projects, housing for the elderly, nursing homes, and improvement of land as sites for buildings and for new communities.

The Housing Assistance Administration makes loans and annual contributions to local public housing authorities for low-income family housing. Coordinates with other agencies' programs dealing with recreation, health, education, welfare, and natural beauty in efforts to improve living environments.

The Land and Facilities Development Administration administers a number of public facility grant and loan programs in accord with local comprehensive plans to public agencies in urban areas. Its Program for Advance Acquisition of Land provides financial assistance to reserve land for future public works and facilities. The Open Space Land Program shares costs of acquiring, developing and preserving open space land for permanent public uses, including recreation, conservation and natural beauty; it may also cover costs of buying developed land to be cleared and used for open space, and some costs of demolition and development of land acquired under the program. Public Works Planning Program offers financial interest-free advances for surveys and studies necessary to public works projects such as sanitation and water facilities, roads and streets, parks and recreation facilities, non-Federal river and harbor improvements. Sewer and Water Facilities Program shares costs of construction of these facilities.

The Office of Planning Standards and Coordination develops policies, standards and procedures, and administers the comprehensive planning requirements of the Department's programs as well as those of other Federal agencies as assigned. Urban Renewal Service offers technical assistance for preparation of plans and programs, which may include plans for rehabilitation projects which do not require Federal financial aid.

The Office of Urban Studies and Clearinghouse Services conducts and sponsors research and studies on housing and other urban problems. Administers demonstration projects to test new techniques in comprehensive planning, zoning, use of tax policies, public works surveys, open space land, and other urban beautification and improvement possibilities. Provides clearinghouse for technical information and program results.

The Renewal Assistance Administration administers and coordinates urban improvement programs in developed areas. Its Code Enforcement Program offers financial assistance for local planning and administering programs to arrest deterioration and aid restoration of both properties and environments; eligible costs include landscape design, planting and lighting. Community Renewal Program provides financial assistance in preparing, completing or revising renewal programs, including costs of studies. Demolition Grant Program helps pay for demolition of legally unsound structures in or out of urban renewal areas. The Urban Beautification Program makes grants for local beautification and improvement work such as development of parks, upgrading of public areas such as malls and waterfronts, provisions of "street furniture" and planting. Urban Planning Assistance grants supplement State and local funds for a wide range of comprehensive planning activities ranging from producing a Workable Plan for Community Improvement to studying regional transportation needs. Urban Renewal Program helps communities in acquiring and clearing land for redevelopment; rehabilitation of existing structures; enforcement of housing codes; and combinations of these. Grants, planning advances, and temporary loans and guarantees are available. The Urban Renewal Demonstration Program helps pay costs of projects which demonstrate, develop or test new or improved methods of preventing or eliminating urban blight, and/or to report such a project.

The Urban Transportation Administration administers research and development projects in many aspects of urban mass transportation. Makes grants to public bodies for capital improvements to transit systems, demonstrations of new ideas and techniques, transit system studies, and advanced training.

Department of the Interior

Washington, D.C. 20240

The Bureau of Commercial Fisheries conducts research and other programs for conservation and management of commercially important fishery resources on the high seas, coastal and estuarine areas, Great Lakes and other interstate waters, and at water projects of Federal agencies. Provides grants, loans and technical assistance.

The Bureau of Land Management administers 500 million acres of federally-owned lands, mostly in the West, on multiple-use principles. Uses include grazing, fish and wildlife, recreation, timber, water, range and wilderness protection, and mineral production. Public domain lands may be made available for lease or purchase for such environmental improvement purposes as public parks, sanitary land-fills and rights-of-way for highways with extra width for scenic purposes. Technical and financial assistance, confined to agency-administered lands may be applied to regional environmental problems in cooperation with local governments. Subjects of recent Bureau of Land Management studies include open space planning for towns, esthetically pleasing routes for power lines, highway planning techniques, fire and litter prevention, historical and archeological inventories of significant sites. Publishes quarterly magazine, Public Lands.

The Bureau of Mines is responsible for conservation, research and development of mineral resources, and promotion of health and safety in mineral industries. It studies air and water pollution related to mineral development and use, and develops model control regulations in cooperation with industry; personnel serve as advisors to local and State air groups. Makes grants for research in solid waste disposal. Some subjects of recent Bureau study: sulfur compounds in fuel coal and oil; control of dusts and fumes from metallurgical and chemical processes; acid mine drainage; control of pollution from back-filling strip mined areas; disposal of solid wastes from open pit and underground mining operations.

The Bureau of Outdoor Recreation promotes coordination on Federal plans and programs in this field and identifies and plans actions needed to protect, develop, and improve the Nation's outdoor environment and recreation resources. Offers technical assistance to State and local government and private interests in planning, acquisition and development of outdoor recreation resources. The Land and Water Conservation Fund Grant Program provides financial assistance for planning, acquisition and development of State and local public outdoor recreation areas in accord with State outdoor recreation plans. The Fund also finances acquisition of recreation lands and waters by the Bureau of Sport Fisheries and Wildlife, Forest Service, and National Park Service. Bureau publications include a periodical, Outdoor Recreation Action, and reports on such subjects as recreation trends, land price escalation, trails, and private and Federal aids to recreation.

The Bureau of Reclamation plans, constructs and operates water storage, diversion and development projects in Western States for domestic and industrial use. Its Reclamation Projects Program provides cost-sharing and loans to reclamation districts, and other public agencies for agricultural irrigation, hydro-electric power, municipal and industrial water supply, flood control, and recreation facilities. Financial assistance also may be provided to States, counties, or municipalities to develop recreation facilities in conjunction with Bureau projects. The Bureau consults with State and local agencies on natural beauty aspects of project location and construction such as location of roads near sites; standards of water quality; and tools and techniques available to test for, control and abate pollution; protection of fish and wildlife. Publishes brochures on recreation facilities at reclamation projects.

The Bureau of Sport Fisheries and Wildlife manages fish and wildlife resources in conjunction with State agencies. Operates national wildlife refuges, national fish hatcheries, and has special responsibilities for migratory birds and rare and endangered species. Administers grant programs—Federal Aid in Wildlife Restoration (known as Pittman-Robertson), and Federal Aid in Fish Restoration (Dingell-Johnson)—providing funds for States to increase wildlife and fish populations. Eligible projects include acquisition, development, restoration, and maintenance and management of wildlife areas and resources. Conducts research, provides technical assistance and information on fish and wildlife management.

The Federal Water Pollution Control Administration reviews water quality standards proposed by the States for interstate waters, carries out interstate enforcement actions, makes grants for construction of municipal waste treatment systems, carries out a research and development program, provides assistance for training fellowships and research, makes river basin planning grants and program grants to State and interstate pollution control agencies.

The Geological Survey conducts research to determine and appraise the mineral and mineral-fuel resources and geologic structure of the United States; conducts investigations to provide technical information required for economic development and best use of water resources; surveys flow and sediment discharge, reservoir contents, location and safe yields of underground waters. Carries out surveys, mapping, and water resources investigations in cooperation with State and local governments, financed on a 50–50 basis. Publications include water supply reports and topographic, geologic, and hydrographic maps.

The National Park Service plans, develops and administers the natural, historic, and recreation areas comprising the National Park System, and provides for preservation, interpretation and enjoyment of other properties of scenic, natural, historic and archeological significance. Its Registry of Natural Landmarks and Registry of National Historic Landmarks provide for evaluation and recording of unique properties. A Historic Preservation Grants Program provides financial assistance to State or local public agencies, or to certain private organizations or individuals, for up to 50 percent of the cost of acquiring and developing historically significant properties. Through a Park Practice Program provides technical assistance to State and local agencies and citizen groups for planning and other technical services on park and recreation matters. Publishes periodicals on park practice and allied subjects. Information and interpretive services are available at National Park System locations.

The Office of Water Resources Research administers financial aid programs for research and training; allotments and matching grants to educational institutions, private foundations, public agencies, and private firms or individuals with competence in water research. Coordinates research in the field, and promotes exchange of information.

Lewis and Clark Trail Commission

c/o Central National Bank and Trust Co., Des Moines, Iowa 50304

Advances public awareness of the historical significance of the Lewis and Clark Expedition, and appreciation and conservation of the natural resources of the region by promoting suitable outdoor recreation developments along the expedition's route; and establishment, designation and marking of related roads and other travel routes so travelers may follow the historic trail.

Department of Labor

Washington, D.C. 20210

The Manpower Administration administers the Manpower Development and Training Act which provides funds for occupational training and retraining for unemployed and underemployed workers, for experimental and developmental projects, and for research. In cooperation with the U.S. Employment Service, local employment offices can help develop job opportunities in recreation and natural beauty work. Other Manpower Administration activities include the Concentrated Employment Program, Neighborhood Pilot Centers, and the Cooperative Area Manpower Planning System. The Bureau of Work Programs administers the following four work-training and job creation programs authorized under the Economic Opportunity Act: The Neighborhood Youth Corps provides disadvantaged youth with full or part-time work experience, basic education, counseling and other assistance. Unemployed youth earn wages by performing a variety of public service tasks that would not otherwise have been done, in such locations as schools, city departments, hospitals, public housing projects, conservation and recreation areas, and in social, welfare and other private nonprofit organizations. Enrollees may work in private commercial establishments under certain conditions. Operation Mainstream projects provide conservation, natural beauty and community betterment work for persons whose employment prospects are poor because of age or other reasons, with reasonable assurance of future full-time employment, independent of further financial support. Projects include air or water pollution abatement, improving parks, protecting wildlife, rehabilitating housing or extending education, health or social services. The Green Thumb Program, administered under Operation Mainstream, in cooperation with the National Farmers Union, provides employment for elderly men in tree planting and other scenic enhancement jobs, especially along roads and highways.

New Careers Program—work-training projects encourage employment in necessary community service jobs.

Special Impact Program projects develop and coordinate community resources to reduce chronic unemployment, eliminate tensions, and generally improve the overall environment of a particular community or neighborhood. Includes renovating houses or apartments, improving health facilities, developing vest-pocket parks, and developing recreational facilities.

National Foundation on the Arts and the Humanities

1800 G St., N.W., Washington, D.C. 20506

The Foundation administers grants-in-aid to develop and promote a broadly conceived national policy of support for the humanities and the arts. Grants may be made to State arts and humanities agencies, other public bodies, and private organizations or individuals. Studies underway include a proposal for a National Institute of Architecture, Planning and Design.

National Referral Center for Science and Technology

Library of Congress, Washington, D.C. 20540

Provides advice on how and where to obtain information on specific topics in the broad areas of science and technology: The physical, biological, social and engineering sciences. Provides information on where to go or whom to contact for such services as bibliographies, reproducing journal articles, translating foreign scientific information, writing documents, compiling scientific data, conducting literature searches, and for other technical advice. The Center is supported by the National Science Foundation.

National Science Foundation

Washington, D.C. 20550

Promotes basic scientific research and programs to strengthen scientific research potential, and fosters the development of science and education through fellowships and other programs. Research activities contribute to the base of the country's science and technology so that, among other results, solutions to environmental problems do not produce new and unexpected problems that can waste funds and resources. The Foundation also supports other scientific objectives, including construction and modernization of major resource facilities, dissemination of scientific information, and science policy studies.

Office of Economic Opportunity

Washington, D.C. 20506

Administers programs designed to help eliminate poverty, including grant programs with environmental concerns. These include improvement of parks and open spaces in low-income neighborhoods, community service centers and recreation facilities, streets and roadside areas, forests and wildlife habitat, and national, State and local park facilities. OEO programs may be administered in conjunction with other Federal agencies, and under contract with or through State agencies. (For example, the Neighborhood Youth Corps, Operation Mainstream, Green Thumb, New Careers and Special Impact programs, listed under Department of Labor.)

The Job Corps provides basic education and work skills to prepare young men and women for jobs in which they can earn a decent living. Conservation Centers provide work and training under supervision of the Departments of Agriculture and the Interior in environmental fields such as forest protection, development and enhancement of wildlife habitat, landscape design and recreational facility layout and construction, erosion control, and park water supply and waste disposal.

The Community Action Program provides financial assistance for development, conduct and administration of community development programs, and for research and demonstration projects, training, and technical assistance to help both urban and rural communities mobilize their resources against poverty. Public or private nonprofit agencies may apply.

Small Business Administration

Washington, D.C. 20416

Advises and assists small firms in obtaining financing; makes loans, either directly or with banks participating, to small, independently owned businesses for construction, expansion, conversion, and other purposes. Makes special loans available for businesses displaced by certain Federal projects. Offers management and other technical assistance to small businessmen, members of community groups, and development companies.

Tennessee Valley Authority

Knoxville, Tenn. 37902

TVA provides technical and limited financial assistance to government and citizen organizations in the Tennessee Valley on comprehensive resource development programs. These include recreation studies; reforestation experiments; watershed and wildlife habitat protection; strip mine reclamation, including demonstration areas; air pollution studies, specifically on coal-fired electric generating plants and sulfur recovery; water pollution abatement; and solid waste disposal. Prepares flood information reports for communities and assists them in determining best use of flood plain lands. Operates Land Between the Lakes, several thousand acres of land between two man-made lakes in Kentucky and Tennessee with facilities for recreation and conservation education. Publications are available reporting various TVA programs which could be of interest elsewhere.

Department of Transportation

Washington, D.C. 20590

The Bureau of Public Roads administers the Federal-aid Highway Program of grants to States for primary, secondary, and interstate highway systems and their extensions. States choose routes, plan individual projects, acquire rights-of-way, and enter into construction contracts; the Bureau provides technical assistance and project approval. BPR administers the Highway Beautification Act, which provides financial assistance to the States for billboard control, junkyard control and screening, and acquisition of lands and easements for scenic enhancement. Cooperates with other Federal agencies in road construction in Federal areas such as national forests. Conducts programs of planning and research on many phases of highway improvement.

The Federal Aviation Administration is responsible for controlling use of navigable airspace, insuring air safety, promoting air commerce. It establishes and operates air navigation facilities, carries out research and development programs, promotes and encourages civil aviation through technical assistance. The FAA's Airport Development Program provides financial assistance for projects considered essential to operation and safety of public airports, including buffer land acquisition and development. FAA also offers technical guidance in design and construction of airport projects not funded entirely with Government funds. Information on runway design, lighting, building architecture, access highway design, planting, land utilization and soil conservation principles are made available through publications and staff consultation.

The United States Coast Guard is responsible for the enforcement of Federal law on the territorial waters under the jurisdiction of the United States and on the high seas where the United States has jurisdiction, establishment and operation of aids to navigation, establishment and operation of search and rescue facilities and the operation of a significant marine sciences and oceanographic program. The Coast Guard performs research and development and can offer technical expertise in many areas associated with the problems of the marine environment. Its numerous facilities, including shore stations, ships and aircraft, are engaged in the accomplishment of its many missions.

Water Resources Council
1025 Vermont Ave., N.W., Washington, D.C. 20005

Composed of the Secretaries of the Departments of Agriculture, the Army, Health, Education, and Welfare, the Interior, and Transportation, and the Chairman of the Federal Power Commission. Establishes River Basin Commissions for relatively large areas to coordinate Federal, State, interstate, local and nongovernmental plans for the development of water and related land resources. Commissions established to date: The Pacific-Northwest River Basins Commission, the Great Lakes Basin Commission, the Souris-Red-Rainy River Basins Commission, and the New England River Basins Commission. The Council makes financial grants to the States for development of comprehensive water and related land resources plans.

PRIVATE ORGANIZATIONS WHICH CAN HELP

The organizations listed are primarily national ones, many with State, regional or local chapters or affiliates which could be contacted directly to be of service in home communities. All of the organizations listed are nonprofit.

Several organizations are listed which are statewide or regional in scope. This is to serve two purposes. First, the organization illustrates a kind of organization to be found in other States and regions as well as for similar services. Second, the organizations listed—insofar as funds and staffing allow—are able to offer help to those in other States or regions wishing to establish organizations with similar functions.

A resource not to be overlooked in seeking help for community action are the countless kinds of national and local service organizations, social clubs, church and business groups actively concerned with environmental problems.

Local private industry, private utility companies, and local divisions of national corporations are possible sources of help in the community. Many already have active community improvement and incentive programs.

The directory below will be of further help in locating private organizations with a variety of related interests.

Conservation Directory. Lists national, regional and State citizen and professional organizations and officials in natural resource and related fields. Issued annually. 122 pages. $1. National Wildlife Federation, 1412 16th Street, Washington, D.C. 20036.

CITIZEN MEMBERSHIP ORGANIZATIONS

Air Pollution Control Association, 4400 Fifth Ave., Pittsburgh, Pa. 15213. Membership represents industry, government, education and health organizations. Emphasizes education, cooperation and exchange of technical information on atmospheric pollution control and improved air sanitation. Publishes monthly Journal and abstracts.

American Association for Conservation Information, 1416 Ninth St., Sacramento, Calif. 95814. Promotes understanding of conservation principles by assisting State efforts in conservation information and education.

American Forestry Association, 919 17th St., N.W., Washington, D.C. 20006. Membership organization supported by private citizens and businesses to promote conservation education and conservation of forest and related resources of water, soil and wildlife. Sponsors annual conferences on resource topics, and wilderness trips. Publishes monthly magazine, American Forests.

American Society of Planning Officials, 1313 E. 60th St., Chicago, Ill. 60637. Membership organization of planners, public officials, and others interested in planned development of communities and regions. Provides research and consulting services, conducts meetings and workshops. Publications include a monthly newsletter and technical assistance bulletins on a broad range of environmental problems.

Appalachian Trail Conference, 1718 N St., N.W., Washington, D.C. 20036. Coordinates volunteer maintenance of the 2,000-mile Appalachian Trail from Maine to Georgia. Can provide publications and other guidance to other groups interested in establishing and maintaining trail systems.

California Roadside Council, 2626 Ocean Ave., San Francisco, Calif. 94132. Example of a statewide citizen organization which works to protect natural beauty in corridors of roads and highways, and encourage good design and wise location of highways. Interests include scenic conservation zoning, billboard and sign control, and undergrounding utilities. Instigates local action; supports local, State, and national legislation. Distributes publications and reprints at nominal cost.

California Tomorrow, Monadnock Building, 681 Market Street, San Francisco, Calif. 94105. Example of educational organization to bring greater public awareness of problems that must be faced in order to maintain a beautiful and productive State. Quarterly journal *Cry California* for membership.

Citizens for Clean Air, 40 W. 57th St., New York, N.Y. 10019. An example of a citizen group working for public education on health, esthetic and economic effects of air pollution. Pioneered an all-media educational advertising campaign which resulted in citizen support for enactment of a local air pollution control ordinance.

Colorado Open Space Coordinating Council, 5850 E. Jewell Ave., Denver, Colo. 80222. Example of a statewide federation of citizen organizations which provides a focal point for citizen action for the preservation, wise use and appreciation of scenic, historic, open space, wilderness and outdoor recreation resources as related to the total environment. Affiliates include 25 organizations with total memberships of some 25,000.

Conservation Education Association, c/o Dr. W. F. Clark, Eastern Montana College, Billings, Mont. 59101. Encourages conservation education programs in public schools and teacher-training. Sponsors annual conference. Publishes newsletter, bibliography, reports and other education materials.

Desert Protective Council, P.O. Box 33, Banning, Calif. 92220. Works to safeguard desert areas of scientific, scenic, historical, and recreational value, and to promote understanding of desert resources.

Ducks, Unlimited, P.O. Box 8923, Chicago, Ill. 60666. Membership organization to perpetuate wild waterfowl principally by preservation and rehabilitation of wetlands in U.S. and Canada. Establishes, promotes, assists, contributes to, and otherwise encourages conservation, restoration and good management of waterfowl habitat.

Garden Club of America, 598 Madison Ave., New York, N.Y. 10022. Organization of local member clubs which promotes knowledge and appreciation of horticulture, landscape design, and natural resource conservation. Provides information on pending legislation, maintains library, holds forums and lectures, sponsors flower shows. Supports scholarships in horticulture and conservation. Distributes packet on conservation practices to teachers and children.

General Federation of Women's Clubs, 1734 N St. NW., Washington, D.C. 20036. An organization of 51 State federations of local women's clubs. Supports study and action programs for community betterment. Departments include Conservation, Education, Home Life, Public Affairs, International Affairs, and Fine Arts. With Sears, Roebuck Foundation sponsors Community Improvement Program to encourage clubwomen to improve their communities, by involving many segments of the community. Publishes program materials for members.

International Shade Tree Conference, 1827 Neil Ave., Columbus, Ohio 43210. An organization of commercial, municipal and utility arborists, public officials, and scientists which promotes improved practices in the planting and preservation of shade and ornamental trees. Offers film and slide presentations. Publications include monthly Arborist News, proceedings of annual conference, and papers on specific problems such as "Industrial Landscaping" and "Highway Beautification."

Izaak Walton League of America, 1326 Waukegan Rd., Glenview, Ill. 60025. Membership organization with local chapters and State divisions. Promotes conservation of natural resources, and development, protection and enjoyment of high quality outdoor recreation and natural beauty resources, and public education in these concerns. Can furnish speakers and literature. Publishes monthly magazine. Cosponsors books and other educational materials.

League of Women Voters of the United States, 1200 17th St., N.W., Washington, D.C. 20036. Nonpartisan membership organization of local and State Leagues. Promotes political responsibility through informed and active citizen participation in government. Concerns include open space, parks and outdoor recreation facilities, with special study and effort devoted to water resource programs at all government levels. Publishes books and pamphlets.

Men's Garden Clubs of America, Morrisville, N.Y. 13408. Supports conservation of natural resources, parks and open spaces, abatement of water and air pollution, undergrounding of utility wires, encouragement of youth gardening. An awards program recognizes service in various environmental fields. Joins in community and industry projects such as the Institute of Scrap Iron and Steel's Green/Screen program.

National Association of Soil and Water Conservation Districts, 1025 Vermont Ave., N.W., Washington, D.C. 20005. Membership organization of 3,000 local districts and 50 State associations working to conserve and develop land, water and related natural resources. Its Recreation and Wildlife Committee can advise private landowners.

National Audubon Society, 1130 5th Ave., New York, N.Y. 10028. Membership organization with State chapters. Works for conservation of all natural resources and conservation education. Special programs for junior groups. Nature Centers Division provides technical assistance in planning and operation of community nature centers. Offers field staff assistance on cost-share basis. The Society publishes monthly magazine, manuals, bulletins and teaching aids, publications list. Offers films and speaker services.

National Conference on State Parks, 1700 Pennsylvania Ave., N.W., Washington, D.C. 20006. Promotes and encourages State parks and related types of recreation resources. In cooperation with the National Park Service and the National Recreation and Park Association, provides publications on park planning, design, operation and philosophy. Publishes newsletter, proceedings, and reports of studies and surveys.

National Council of State Garden Clubs, 4401 Magnolia Ave., St. Louis, Mo. 63110. Organization of local clubs in every State concerned with community improvement. Sponsors, with Sears, Roebuck Foundation, a Community Beautification Program. Films, filmstrips available.

National Parks Association, 1300 New Hampshire Ave., N.W., Washington, D.C. 20036. Encourages public support for the protection of the national park system and of the natural environment generally. Interests include river basin planning, regional recreation planning, and wilderness and wildlife protection. Publishes monthly National Parks Magazine, conservation leaflets for use in schools, and studies on conservation issues.

National Recreation and Park Association, 1700 Pennsylvania Ave., N.W., Washington, D.C. 20006. Dedicated to advancement of recreation and park activities and the conservation of natural and human resources. Provides public information programs, research services, workshops and other training through nine regional offices. Publishes monthly Parks and Recreation magazine and newsletters on specialized subjects.

National Trust for Historic Preservation, Decatur House, 748 Jackson Pl., N.W., Washington, D.C. 20006. Membership organization made up of individuals and groups. Provides advice and technical assistance on preservation and restoration of buildings or sites significant in American history and culture. Cooperates with National Park Service and other agencies on Historic American Buildings Survey, National Register of Landmarks and similar projects. Administers endowed properties for public enjoyment. Publishes leaflets on such subjects as preservation law and restoration techniques, a quarterly journal and a monthly newspaper.

National Wildlife Federation, 1412 16th St., N.W., Washington, D.C. 20036. Membership organization, with affiliated State organizations. Dedicated to encourage wise use and management of natural resources. Sponsors annual National Wildlife Week. Makes grants to graduate students. Publishes booklets, newsletters, bimonthly magazine of general interest, monthly nature magazine for children. Distributes television and radio materials.

National Youth Conference on Natural Beauty and Conservation, c/o Girl Scouts of the U.S.A., 830 Third Ave., New York, N.Y. 10022. Cooperative effort of 11 national youth organizations to work toward goals of their 1966 conference. Encourages involvement of young people not affiliated with these groups. A Youth Project Assistance Grants Program sponsored by the Coca-Cola Co., helps young people to further worthy natural beauty and conservation projects already underway. Participating youth organizations may be addressed directly:

Boy Scouts of America
New Brunswick, N.J. 08903

Boys' Club of America
771 First Ave.
New York, N.Y. 10017

Camp Fire Girls, Inc.
65 Worth St.
New York, N.Y. 10013

4–H and Youth Development
Federal Extension Service
U.S. Department of Agriculture
Washington, D.C. 20250

Future Farmers of America
U.S. Office of Education
Department of Health, Education, and Welfare
Washington, D.C. 20202

Future Homemakers of America
U.S. Office of Education
Department of Health, Education, and Welfare
Washington, D.C. 20202

Girls' Clubs of America, Inc.
101 Park Ave.
New York, N.Y. 10017

Girl Scouts of the U.S.A.
830 Third Ave.
New York, N.Y. 10022

Red Cross Youth
The American National Red Cross
17th and E Sts., N.W.
Washington, D.C. 20013

Young Men's Christian Association
291 Broadway
New York, N.Y. 10007

Young Women's Christian Association
600 Lexington Ave.
New York, N.Y. 10022

The Nature Conservancy, 1522 K Street, N.W., Washington, D.C. 20006. Membership organization with primary purpose of acquiring land to help preserve the country's natural heritage. A revolving loan fund permits purchase of natural areas threatened with destruction. Accepts gifts of land for conservation purposes, manages a system of reserves, provides technical and financial assistance to landowners, groups, and government agencies. Assists universities in acquisition of land for biological study. Publishes quarterly News, and pamphlets on scientific, educational and legal aspects of natural area and open space preservation.

The Open Lands Project, 123 W. Madison St., Chicago, Ill. 60602. Example of a metropolitan area effort to examine area conservation and recreation needs, and press for action to meet them. Affiliated with Welfare Council of Metropolitan Chicago, coordinating body of 263 Chicago area health, welfare and recreation agencies. The project is administered by staff and a committee of conservationists, businessmen and scientists.

The Outdoor Circle, 1319 Kalakua Avenue, Honolulu, Hawaii 96814. Example of membership organization (formed in 1911) supported by annual dues, to preserve the natural beauty of the State. Works with public officials and businessmen on such problems as outdoor signs, public landscaping projects, proper garbage and sewage disposal, and the planting and preservation of trees.

Regional Plan Association, 230 W. 41st St., New York, N.Y. 10036. An example of a citizens' organization dedicated to development of an efficient, attractive and varied metropolitan region—in this case the three-State metropolitan region surrounding New York City. Membership is open to individuals, businesses and organizations. Holds an annual Regional Plan Conference. Publishes research bulletins and periodicals, including Regional Plan News.

Roadside Councils. In some 17 States Roadside Councils work for scenic highways, billboard control, roadside rests, and related concerns. There is no national organization but the California Roadside Council (which see) serves as a national clearinghouse for other State Councils.

Save-the-Redwoods League, 114 Sansome St., San Francisco, Calif. 94104. Membership organization which cooperates with California State Park Commission, the National Park Service, and other agencies in establishing and preserving redwood parks, and other parks and reservations, and in rescuing from destruction representative areas of primeval forests.

Sierra Club, 1050 Mills Tower, 220 Bush St., San Francisco, Calif. 94104. Membership organization devoted to exploring, enjoying, and protecting natural scenic resources. Active in conservation administration, litigation, and legislation. Sponsors wilderness outings, mountaineering, skiing, and river touring. Produces conservation films, exhibits, and manuals; sponsors conferences on wilderness and natural science; and publishes books on wilderness and other scenic resources, guide books, a monthly Bulletin, and other conservation-education materials.

Society of American Foresters, 1010 16th Street, N.W., Washington, D.C. 20036. Membership of professional foresters to represent, advance, and protect the interests and standards of the profession. Publishes monthly magazine.

Sport Fishing Institute, 719 13th Street, N.W., Washington, D.C. 20005. Works through research, education, and serves to enhance fishery resources.

Urban America, 1717 Massachusetts Ave., N.W., Washington, D.C. 20036. Educational organization seeking to improve total quality of life in cities. Purposes include fostering of planning for the best use of land and natural resources, conservation of natural scenery, and encouragement of good environmental design. Publications include a bimonthly, City; and brochures and other materials.

Western Pennsylvania Conservancy, 204 Fifth Ave., Pittsburgh, Pa. 15222. Example of active State, citizen membership organization. Work includes comprehensive planning and acquisition of land for State parks, nature centers, and other open space, and acquisition and restoration of historic landmarks. Conducts educational programs, maintains speakers bureau.

The Wilderness Society, 729 15th St., N.W., Washington, D.C. 20005. Membership organization dedicated to increase knowledge and appreciation of wilderness, and to see established policies and programs for its protection and use. Encourages members to work for preservation of wilderness areas near home communities in cooperation with other groups. Publishes quarterly magazine, The Living Wilderness.

NONMEMBERSHIP ORGANIZATIONS

American Association of Nurserymen, 835 Southern Bldg., Washington, D.C. 20005. Promotes replanting of forests and unproductive farmlands, and park, street and highway planting. A Landscape Awards Program recognizes achievement in industrial, institutional, municipal and commercial planting. Members participate in public service programs such as *New Roots for Young America* (sponsored by Reliance Insurance Co.), to provide plantings for schoolyards. Provides films and pamphlets.

American Conservation Association, 30 Rockefeller Plaza, New York, N.Y., 10020. Privately supported nonmembership educational and scientific organization dedicated to the advancement of knowledge and understanding of conservation, and to the preservation and development of natural resources for public use.

American Forest Products Industries, 1835 K St., N.W., Washington, D.C. 20006. Encourages management of forest lands on the multiple-use principle, including regard for natural beauty. Provides free materials including booklets, charts, packets for organization programs, and films.

Conservation Associates, Mills Tower, 220 Bush St., San Francisco, Calif. 94104. Provides assistance in land planning and land acquisition to private and public conservation interests.

The Conservation Foundation, 1250 Connecticut Ave., N.W., Washington, D.C. 20036. Privately supported organization for research, education, and information to help protect and enhance the quality of the environment. Conducts an interdisciplinary program of environmental studies, conservation services, and a research grant program. Seeks to encourage recognition of ecological principles and natural resource values in planning and decisionmaking, and to increase effectiveness of social action for accomplishing conservation goals. Publications include a periodic newsletter on environmental issues, a quarterly education bulletin, and booklets.

Conservation Law Society of America, Mills Tower, 220 Bush St., San Francisco, Calif. 94104. Helps defend the public interest in protection and appropriate uses of parks and comparable reserved areas through application of law. Can provide counsel on a fee basis in administrative and court proceedings on selected cases of nationwide significance.

Design for Washington, 312 First Ave. North, Seattle, Wash. 98109. Example of a statewide organization which encourages citizens to involve themselves in community environment. Suggests how to get and use professional assistance to rally business, public and other elements of the community, how to coordinate private enterprise and public works, and what people have done elsewhere that worked. Developed from 1965 Governor's Design for Washington Conference, financed by private contributions.

Ford Foundation, 477 Madison Ave., New York, N.Y. 10022. Privately funded institution to serve the public welfare including support of research, training, and demonstration projects relevant to the quality of man's environment. Operates only through grants to private nonprofit agencies, State and local bodies, and educational institutions. Concerns include strengthening applied ecology, improving training of resource administrators, preserving open space, encouraging good environmental design, assisting in elimination of pollution, and promotion of sound policies of resource use.

Industrial Gas Cleaning Institute, Box 448, Rye, N.Y. 10580. Trade association. Disseminates information on air pollution control, the effects of industrial gas cleaning on public health, and other industry matters. Cosponsors a nationwide Clean Air Community Action Program with U.S. Jaycees.

Institute of Scrap Iron and Steel, 1729 H St., N.W., Washington, D.C. 20006. Encourages scrap processors to screen yards through Project Green/Screen.

Keep America Beautiful, 99 Park Ave., New York, N.Y. 10016. Industry-financed clearinghouse and coordinating agency for antilitter activities. Provides for public education services, largely through national publicity and advertising campaigns. Carries out research, provides litter prevention advice and materials, holds workshops and meetings with leaders of interested organizations. Publishes booklets, brochures, sponsors films.

Mined-Land Conservation Conference, 1130 17th St., N.W., Washington, D.C. 20036. Membership from mining and allied industries who recognize need for reclamation and conservation planning in mined-land areas, and greater public awareness of such efforts. Publishes monthly newsletter.

National Association of Home Builders, 1625 L Street, N.W., Washington, D.C. 20036. Encourages better housing and community planning and design. Through its Institute of Environmental Design, Land Use and Development Department, and member committees, studies political, legal, conservation, esthetic and social aspects of land use and housing; holds conferences of builders and leaders in other disciplines including planning, sociology, education. Publishes monthly Journal.

National Auto and Truck Wreckers Association, 18 Second Ave., San Mateo, Calif. 94401. Trade association. Makes available information on techniques of screening wrecking yards.

National Clean Up-Paint Up-Fix Up Bureau, 1500 Rhode Island Ave., N.W., Washington, D.C. 20005. Industry supported foundation helps towns develop "clean-up, paint-up, fix-up" campaigns of short duration, year-round civic action programs involving city governments and volunteer organizations. Provides action kits, publishes newsletter, both free. Provides posters, films and other materials at cost.

National Sand and Gravel Association, 900 Spring St., Silver Spring, Md. 20910. Trade membership organization. Prepares publications, including Site Utilization and Rehabilitation Practices for Land and Gravel Operations, Case Histories, Rehabilitation, Land Use Planning and other materials and guidelines capable of more general application.

Resources for the Future, 1755 Massachusetts Ave., N.W., Washington, D.C. 20036. Conducts programs of research and education in development, conservation and use of natural resources, through its own staff and through grants to other institutions.

Sears, Roebuck Foundation, 925 So. Homan Ave., Chicago, Ill. 60607. Supports community betterment programs in conjunction with nonprofit organizations such as the General Federation of Women's Clubs (Community Improvement Program) and the National Council of State Garden Clubs (Community Beautification Program). Financial aid, booklets, filmstrips available to participating clubs.

Urban Land Institute, 1200 18th St., N.W., Washington, D.C. 20036. Independent research organization supported by membership, publication sales, and sponsored research. Works to promote better urban planning and development through study and analysis and reporting of trends in development and use of land. Publishes monthly newsletter, technical bulletins, and special reports from research projects and from Panel Studies.

Wildlife Management Institute, 709 Wire Building, Washington, D.C. 20005. Supported by individuals, groups and industries to promote restoration and improved management of wildlife and related natural resources. Field representatives provide technical services to landowners and work with State and Federal agencies. Publishes books, newsletter.

PROFESSIONAL ORGANIZATIONS

American Association for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington, D.C. 20005. Members are scientists and scientific societies representing all fields of science. Purposes include increasing public understanding of science. Fosters broad interdisciplinary programs on environmental subjects. Publishes weekly magazine Science, quarterly review, science books, and symposium volumes including such titles as Air Conservation, and Estuaries.

American Institute of Architects, 1735 New York Avenue, N.W., Washington, D.C. 20006. Professional membership organization to promote excellence in architecture and urban design, and public action for improvement of environment. Local chapters implement programs developed by national committees. These include the *War on Community Ugliness* program to stimulate public interest and action to improve urban environment; urban design assistance teams, and citations for excellence in community architecture. AIA supports legislation and works with public agencies to improve urban design, transportation, and preservation of historic architecture. Publishes monthly magazine; produces books and visual aids.

American Institute of Planners, 917 Fifteenth St., N.W., Washington, D.C. 20005. Professional membership of individuals on State, metropolitan and local professional planning staffs and consultants concerned with comprehensive planning. Issues background papers and policy statements; undertakes studies. Sponsors conferences and interdisciplinary programs. Publishes bimonthly Journal, monthly newsletter, and annual conference proceedings.

American Society of Agronomy, 677 Segoe Rd., Madison, Wis. 53711. Professional membership organization of soil, crop, turf-grass and land management scientists. Publishes a journal, scientific magazines, monographs and newsletters.

American Society of Landscape Architects, 2000 K Street, N.W., Washington, D.C. 20006. Professional membership organization to promote education and skill in landscape architecture. Publishes policies on public-interest aspects of landscape conservation, and supports their implementation at all levels of government. Local chapters are available for consultation. Makes awards to organizations contributing to landscape improvement, and cooperates with other design professions in enhancement of man's environment. Publishes a magazine, Landscape Architecture, and special reports.

National Education Association, 1201 Sixteenth St., N.W., Washington, D.C. 20036. Professional organization of educators which, with regard to education in conservation and natural beauty, assists schools in teaching future citizens to appreciate their natural heritage, recognize forces which endanger it, and be prepared to help maintain a desirable environment. Affiliated departments include the American Association of School Administrators, American Association for Health, Physical Education and Recreation, and Department of Rural Education. Publications include a journal and a list of references on conservation education.

National Recreation and Park Society, 1700 Pennsylvania Ave., N.W., Washington, D.C. 20006. Professional branch of National Recreation and Park Association.

Society of American Foresters, 1010 16th Street, N.W., Washington, D.C. 20036. Professional organization of foresters to promote the science, practice and standards of forestry. Local chapters are available for consultation. Publishes Journal of Forestry.

Soil Conservation Society of America, 7515 N.E. Ankeny Rd., Ankeny, Iowa. 50021. A professional membership organization comprised of soil conservationists, scientists, educators and administrators. Local chapters available for consultation. Publishes a journal.

The Wildlife Society, 3900 Wisconsin Ave., N.W., Washington, D.C. 20016. Professional membership organization of wildlife biologists, educators and administrators. Local chapters can provide technical assistance in planning to include consideration of overall ecological relationhsips affecting natural beauty programs. Publishes Journal of Wildlife Management.

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